# ne Iron

INDEX TO READING MATTER, A Review of the Hardware, Iron and Metal Trades.

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Single-Stand Steam Hammer.

The annexed illustration represents a 3-ton single-stand steam hammer recently turned Bros., of Bradford.

The Mechanical World, from which we

take the engraving, in the course of its description remarks that the use of doublesandard hammers, though very necessary for work of an excessive weight and for hammers of extraordinary dimensions, has extended, in the opinion of many engineers and forge makers, too far down the scale of sizes, for there can be no doubt that the single-standard hammer is specially suitable and convenient for use in certain classes of work, and that it can be substantially and satisfactorily constructed in sizes very con-siderably larger than has hitherto been the case. Messrs. Thwaites have given to this tool a great amount of attention, and have materially improved it in both durability and efficiency for the description of work to efficiency for the description of work to which it is suited—namely, marine shafts and large forgings. The frame is of cast iron; if desired, may be made with standards of wrought iron. The motion work is of the best Low Moor iron, suitably case-hardened in the joints, which are fitted with steel pins, and all working parts are machined to accurate fits, the valve motion having received special attention. The cylinder is 28 inches in diameter, the stroke being 5 28 inches in diameter, the stroke being 5 feet, and is firmly bolted to the standard by turned bolts, the holes being reamed true when in position. The box section has, of course, been adopted for the standard to secure rigidity and firmness, and has an average thickness of 3½ inches. The piston-rod, which is 14 inches in diameter, is planed with two longitudinal flats upon it, which, being fitted accurately in the gland of the stuffing-box, serve to prevent rotation while

The tendency of a hammer tup to rotate is not excessive, and, with stout piston-rods, planed flats are considered superior to the method of guiding the tup which is essential in the case of thin piston-rods. The use of the thick rod, dispensing with the slide guides, gives greater accommodation for the work on the anvil at the standard side. work on the anvil at the standard side. With guides to the tup head this space is not available. The rod, as well as the piston and the hammer head, are forged in one solid piece, the base of the cylinder and the stuffing gland being in halves and bolted strongly together to admit of this solid forging being placed in position, as seen in our illustration. The pallet or hammer face is of steel, of specially selected tough mixture for durability. The valve is of the piston type, perfectly in equilibrium, and fitted with type, perfectly in equilibrium, and fitted with four ring; of steel to insure steam-tightness, and the stop-valve, circular in form, is of gun metal, the seat also being of the same material. The steam-ways in the seat conmaterial. The steam-ways in the seat consist of a number of small holes, this being done to insure easy control in opening and closing the valve. Both the stop-valve and the working-valve are conveniently arranged in the same chest, the working-valve being controlled by hand-levers, which are carried down to near the ground at the back of the standard, and the stop-valve being worked by the hand-wheel screw and levers visible above the working handle on the standard side. Such a hammer as we have described requires a good anvil, and this consasts of a hard face of best steel dovetailed into the anvil top, which is also of steel, but of a mild quality, and is in turn secured by bolts to the anvil block proper, a casting 24 tons in weight, bedded carefully on a substructure of heavy logs, 13 x 13 inches, of a depth of of heavy logs, 13 x 13 inches, of a depth of 2 feet 2 inches, laid on stone 1 foot 6 inches thick and bedded on concrete, which is carried down to a solid substratum in the m approved manner, the hammer standard being bolted by eight 2½-inch bolts to a strong, firm foundation of two layers of timber 12 inches square, seated on dressed ash-lar stone 3 feet thick, fixed on an indepenlar stone 3 feet thi

M. Errington de la Croix has calculated the velocity of propagation of the tidal wave caused by the volcanic cruption of Kraka-toa. The final moment of the explosion was about 12 minutes to noon, when a gigantic wave was formed in the Straits of Sunda. But the same day, at 1.30 p. m., a tidal wave was felt on the coasts of Ceylon, nota-bly at Point de Galle. Assuming that this was the same disturbance propagated across the 1800 miles of sea dividing Point de Galle from Sunda, M. de la Croix calculates the velocity of propagation to be some 1200 miles per hour, or 1804 feet per second. Further data from the Island of Mauritius affords a check on this result. Here the distance is 3300 miles from Sunda, and the tidal ebb was felt at 2.15 p.m. Hence the speed per second works out as before—1804 feet.

R. Tarrant, of Chicago, Ill.

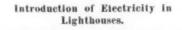
Restricting Iron Production in a England.

A renewed attempt to carry out the principle of restricting the output in the North of England iron trade, says the London in the North iron, there being less in hand, in point of iron hand, in point of sale in distant markets both at home and says about of Cleveland crude iron of all classes were shipped last year to foreign and coastwise iron is contrary to general experience, and the measures proposed disproportionately to those of other districts, this large outside requirement must inevitably fall off. That the Iron in point of fact, that for the previous six years. That abroad. In round numbers, 1,000,000 tons of Cleveland crude iron of Cleveland

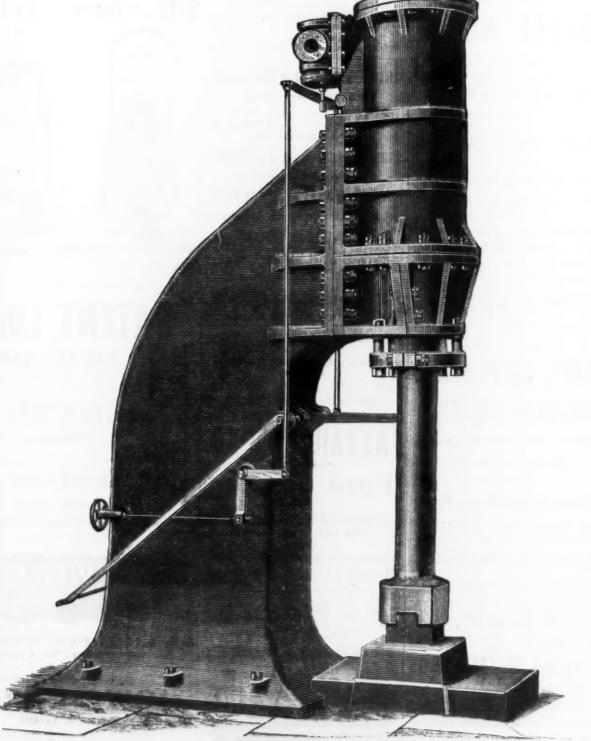
through which the feed-water circulates on its way to the boiler, thus heating the water to a high temperature. The steam, having performed its work, finds its way out, considerably condensed, of course, through the outlet provided for that purpose. The effect of the interior suspended ve-sel is to cause than would be the case if it were omitted. This feed-water has been patented by R. Tarrant. of Chicago. Ill.

being 1,781,443 tons, while last year it had risen to 2,760,740 tons. Concurrently with a reduction of prices of Cleveland iron last year there was a diminution of stocks, and the end of the year found the stock in the district 253,105 tons, 13,000 tons less than at the end of 1882, while, as compared with the previous year, 1881, there was a reduction of 125,000 tons. It cannot, therefore, be said that the trade is overweighted with stocks of iron, there being less in hand, in point of sale in distant markets both at home and difficult to conjecture, while its readily ap-

a system of elevated road would be, it is difficult to conjecture, while its readily ap-parent drawbacks would perhaps be sufficient to prevent successful practical working.



Sir James Douglass and several other sci-entific gentlemen, says the English Mechanics, are about to institute a series of electrical experiments on behalf of the Trinity Board with their existing electric-lighting machin-ery and an enormous De Méritens machine, at the two lighthouses near Dover. Dynamo machines do not appear to rank as the best generators for lighthouses, as Holmes's magnetic induction machines have held their own at this important lighthouse, and, among the trials about to take place, a De Méritens large-size magneto generator will be installed, which is expected to yield magnificent stalled, which is expected to yield magnificent results. These machines of De Méritons will soon occupy all the lighthouses on the French coast, and it is a wonder these generators have been so little adopted in this country. Count du Moncel, in his translated little work, speaks of their high power as compared with the small force required to drive them. In this machine alternate currents are produced, and the whole of the armature current is utilized during its entire or part revolution. This form of armature also revolution. revolution. This form of armature also requires but little horse-power, on account of the peculiar arrangement of the circular magnetic field it rotates i.; on a smeller scale, as in the factory machines, which yield about 1200 candle-power at about 750 per minute, and absorb only 1½ horse-power. The small machines contain about 3 cwt. of steel-inducing magnets, with their poles placed alternately N. and S., which poles placed alternately N. and S., which operate upon 16 annular magnets forming a ring tire armature, which are arranged on the periphery of a brass wheel. Each annular magnet contains about 1½ pounds of wire, and the iron core is built up of pieces of iron, instead of being solid castings, which hightens the induction effects, and the property the formation of income forms. also prevents the formation of injurious Fou-cault currents. Two brilliant electric lights have hitherto been visible for many miles at sea from the South Foreland Lighthouse, but the experimental installation soon to take place will eclipse the light at present emitted from the two lanterns on the tower. It was from these lighthouses Professor Tyndall car-ried out his famous experiments on sound by a fog siren driven by the engines of the lighting machinery.



THREE-TON SINGLE STAND STEAM HAMMER.

THWAITS BROTHERS, BRADFORD, ENGLAND,

Times, is being attempted by the pig-iron while there was added during the autumn and continued down to last year, had some producers of the Cleveland district. The the influence of a probable large decline of effect in raising prices for a time there producers of the Cleveland district. The influence of a probable large decline of immediate cause of such action being taken is the very low price to which pig iron has of the iron made in the North of England. declined. A continuous fall in prices occurred last year, a reduction of rates to the
extent of 7/ per ton taking place. Since
the present year commenced a still further
reduction took place, and a few days since
Cleveland No. 3 had touched 35/6 per ton,
with prospects of a further decline. It was
under these circumstances that the Cleveland iron maters heren to draw together
the prospective conditions, rather than
former period there was an actively enlarg
ing condition of trade, while at the present
time, must be chiefly credited with
the unsatisfactory state which at present
the Scotch ironmasters joined those of
Cleveland in 1881-82 in reducing the output.
It is not unlikely that an attempt will be
again made to induce them to co-operate in
the two periods are very diverse. At the
former period there was an actively enlarg
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former period there was actively enlarge
for extent of the trad A feed-water heater of novel construction for boilers may be briefly described as follows: It consists of a strong cylindrical vessel having an inlet-pipe at one end and an outlet-pipe on the other. The inlet-pipe connects with steam exhaust of engine. Within the cylinder is a worm extending nearly from end to end. The inlet and outlet of this worm are preferably at the same end of the cylinder, the former leading to the feed pump and the latter to the boiler. A smaller hollow sheetmetal vessel is suspended centrally within the worm. The exhaust steam from the engine, entering the cylinder, flows through the same in contact with the coil of pipe

effect in raising prices for a time there seems to be no doubt, but the conditions of the two periods are very diverse. At the

Mr. L. J. Wing's new plan for elevated railroads, recently explained before the Rapid Transit Commissioners in this city, is not the least interesting among various similar projects now before the public. According to his ideas, the cars are to be suspended below an elevated superstructure and moved by an endless wire cable, the bottom of the car being 12 feet above the surface of the street, or about on a level with the second floors of ordinary buildings. It is proposed to have no stations in the streets, but to provide waiting-rooms in the buildings along Can Railways be Made Moro the road. Passengers will enter the cars by Transportation of Freight!

# A Large Machine Tool.

The San Francisco Tool Company, in con-junction with the Union Iron Works, of that city, are constructing what will no doubt be the largest machine tool of its class in this country. It is a machine for turning, planing and boring, and when completed is to weigh 120 tons. The reciprocating tools will traverse a plane, 8 x 25 feet, with both vertical and horizontal action. The revolving table is 25 feet diameter, with 36 change of speed, and will mount work 30 feet in diameter. All boring, planing and turning appliances operate at angles with automatic ed operated by hydraulic power. In respect its varied functions and the complexity of its movements, there is little doubt that this machine will, when completed, constitute one of the boldest ventures ever made in tool practice.

The design was prepared by Mr. J. Richards, of the Tool Company, instructed by Mr. Dickie, of the Union Iron Works Company, who has in this, as in many other things, ventured far beyond the usual lines of ongineering practice. For those who may be curious to know the purpose of so large a machine of its kind, it may be explained that the Union Iron Works Company have recently made a grooved rope pulley that recently made a grooved rope pulley that would have required nearly the whole capac-ity of the machine described, and that the new plant of the company will include the heaviest tools in use in this country.

A hydraulic flanging and shearing ma-chine of 100 tons has just been moved into The whole works are underlaid position. with a hydraulic system, hydraulic power being employed for various purposes, even to opening the vast doors of the erecting and boiler shops. In this connection it may be mentioned that Mr. Dickie has discarded the traditional cup-leathers in the hydraulic machinery, employing iestead fibrous packing. The works, when completed, will cover 26 acres of ground, and the Pacific coast can boast of one of the most complete, if not the largest, works of the kind on this

We notice that the American Society of Civil Engineers has honored Mr. Wm. P. Shinn with the Norman medal for 1883, in "The Increased Efficiency of Railways for the Transportation of Freight," and "How Can Railways be Made More Efficient for the ANSONIA BRASS AND COPPER CO., SANUFACTUREDS OF PURE COPPER WIRE,

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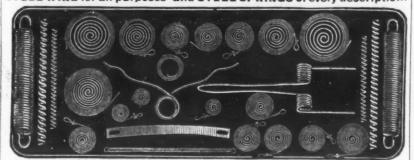


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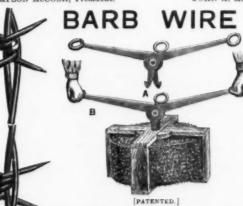
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**Exports of Agricultural Implements** 

We have already noticed the shipment of two large lots of agricultural implements from this port for Russia direct. The last comprises about 40 carloads from Batavia, in this State. Agricultural implements have now been sent to Russia from this country for some eight years. Previous to that time the consignments were every small. They Bar, Angle, Skelp and Sheet Iron. embrace reapers, mowers and harvesters, but not to any extent minor implements which cannot be called machines. The merits which American implements have over those which are manufactured in England-our principal competitor—are their greater adaptability and the better quality of the wood used in them. The English machines are well made and well adapted for work, but are in small variety, while those manufactured in the United States are in many styles. European woods are not so tough and enduring as ours, making the danger of breaking a great deal more. The total amount cent to Russia is perhaps \$150,000 a year, nearly all of it going at this season, so as to be exposed for sale early enough to be used with the growing crops. Freights to the Black Sea will average about 30/ a ton, and to St. Petersburg about 37/ or 38/. The navigation of the Baltic and the Atlantic to the latter port is regarded as much more dangerous than the Mediter ranean and the Black Sea route, four vessels being cast away on the way to St. Petersburg to one to Odessa. There is a tariff on these commodities, but not an excessive one, and their use seems to be extending. are made there.

The agricultural implement industry in the United States did not attain large proportions until about the time of the World's Fair in London, in 1850, when McCormick won a great success with his reaper. Since that time we have exported agricultural implements largely. There are now in the United States 1943 establishments which make these machines, 39,580 hands being employed, machines, 39,580 hands being employed, \$15,539,610 paid in wages, \$31,531,170 being the value of materials, and \$05,640,486 being the value of the product. They are made most largely in the West. Ohio produces yearly \$15,479,825; Illinois, \$13,448,575; New York, \$10,707,766, and Indiana, \$4,460,408. The towns which devote most attention to this judgetty are Springfield and Day. tion to this industry are Springfield and Dayton, Ohio; Chicago, Ill.; Auburn, N. Y., and Louisville, Ky., each producing over a million dollars' worth of goods. Next after these come St. Louis and Philadelphia, each producing more than three-quarters of a mil-lion. The number of establishments in each State and the amount of goods produced are

	A A	4 88888816.5	. 9 (2,1110)
	Alabama		\$13,07
	Arkansas	118	9,98
	California	31	389,56
N	Connecticut.	51	832,50
AR h)	Delaware	12	67,40
d	Georgia	20	200,12
18	Illinois	230	11,306,95
-	Indiana	586	8,:31,81
- 1	Iowa	58	1,185,58
9	Kansas	1-8	72,45
	Kentucky	286	2,256,03
	Louisiana	1	3,00
	Maine	1294	726,30
	Maryland	1964	895,40
	Massachusetts	29	910,00
,	Michigan	143	2,485,28
	Minnesota		2,815,22
	Mississippi	12	31,90
	Missouri	74	645,77
_	Nebraska	1.3	37,55
	New Hampshire	17	196,76
	New Jersey	40	208,80
,	New York	1865	9,550,00
	North Carolina	31	132,80
	Ohio	156	16,111,57
	Oregon	4	85,00
- 1	Pennsylvania	200	3,452,92
- 1	Rhode Island	4	18,50
	South Carolina	7	18,15
-	Tennessee	33	161,08
- 1	Texas	13	83,80
- 1	Utah	1	5,00
- 1	Vermont	35	640,90
	Virginia	51	536,05
•	West Virginia	16	78,05
	Wisconsin	108	8,747,09
	Total	1,943	802,109,66

"The agricultural implement business, said a very extensive dealer and manufac-turer, "is steadily growing, and at a greater turer, rate than either population or wealth. For merly our farmers could not afford to buy expensive machinery, and wheat was cut by the scythe, or, as I have heard old men say, by the sickle; now, on level ground, nearly all is cut by machines, and a really first-class hand mower is difficult to find. Steam enhand mower is difficult to find. Steam engines are found in every neighborhood to use in agricultural work. There used to be a great scarcity of hands along about harvest time; but now. Although they are still scarce, we have no difficulty in gathering our crops. Our machines and implements cover a great variety. They comprise corn planters, cotton planters, fertilizer distributors, grain drills, grain sowers, seed sowers, transplanters, clod crushers, cotton choppers, cultivators, harrows, hoes, plows, shovels, rollers, fruit gatherers, grain cradles, harvesters, hand rakes, hay forks, hay londers, hay tedders, horse rakes, lawn mowers, mowers, potato diggers, reapers, reapers and mowers combined, scythe snaths, sick les, clover hullers, corn huskers, corn shell-ers, fanning mills, separators, thrashers, cane mills, cider and wine mills, feed steam-ers and boilers, hay and straw cutters, hay presses, horse powers, stalk pullers, stone gatherers, stump pullers and syrup evaporat ors. All these are made in quantities, the parts being interchangeable. Many of the factories that make them also make other goods which cannot be called agricultural. These works are of great size. One in Hoosick Falls covers 200 acres, and has increased the population of that village from 1000 to 6000. The works in Auburn each employ about 800 men, and wherever a successful manufactory is planted it is sure to increase the population of the town at least a thou

The recent explosion of a boiler in a Rochester, N. H., shoe factory is one of those regularly recurring cases of either criminal carelessnoss or extreme stupidity which always have been—and, we regret to say, very probably always will be-promi-nently connected with steam-boiler manage ment. One of the daily papers, alluding to the accident, graphically described it by stating that the engineer "hung a brick on the safety-valve lever, with the aim of rais

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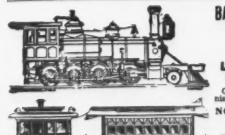
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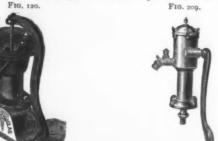
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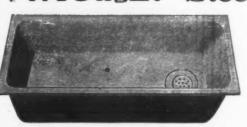
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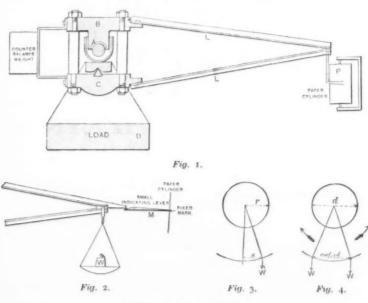
ing an extra quantity of steam. He raised it; likewise the building." We need add nothing in the way of explanation, and only in both directions, and the sum of the values of s on both sides was measured, the dangers of overweighting safety-valves, the practice should still be indulged in to so alarmingly great an extent.

## Report on Friction Experiments.

BY BEAUCHAMP TOWER. \*

1. Description of Machine. —In experi-menting on the friction of lubricated bearings and on the value of different lubricants, one of the difficulties which is first met with is the want of a method of applying the lubricant which can be relied upon as sufficiently uniform in its action. All the common methods of lubrication are so irregular in their action that the friction of a bearing often varies considerably. This variation, though small enough to be of no practical impor-tance, and to pass unnoticed in the working of an ordinary machine, would be large enough to utterly destroy the value of a set of exmethod of lubrication such as would be perfectly uniform in its action and would form an easily reproducible standard with which to compare other methods. These conditions were best fulfilled by making the bearing run the experiments it was found that, immediately after the motion of the shaft was restard the friction was greater than it was the bearing is always supplied with as much oil as it can possibly take, so that it represents the most perfect lubrication possible, and is a good standard with which to com-

and then the coefficient of friction was indi-cated by the chord of the whole angle, included between the two lines of inclination caused by the friction, with the rotation in the two directions, expressed in terms of the diameter of the journal (see Fig. 4). Each result was thus a mean of two experiments, one with the axle running in one direction, and the other with it running in the other direction. In order to read the value of the oefficients thus obtained, a light horizontal ever, L. was attached (as shown in Fig. 1) to the frame connecting the brass to the knife-edge. It was 62 ½ inches long, or 12 ½ times the distance between the center of the journal and the knife-edge; so that at the end of the lever the chord indicating the coefficient of fiction was magnified 12½ times. As a chord of 4 inches at the knife-edge represents a coefficient of 1, a chord of 50 inches at the end of the lever also repreinches at the end of the lever also represents outerly destroy the value of a set of experiments, say, on the relative values of various lubricants, for it would be impossible to know whether an observed variation was due to a difference in the quality of the oil or in its rate of application. The first problem, therefore, which presented itself in the present experiments was to devise a method of lubrication such as would be persuance between the two lines obtained by running the method of lubrication such as would be persuance of the lever also represents a coefficient of 1, while 5 inches represents a coeffic running the machine both ways, when measured on the above scale, indicated the value



FRICTION EXPERIMENTS.

pare other methods. It is at all times perfectly uniform in its action. It is very minished as the brass became worn so as to easily defined and reproduced, and it also has the advantage that the temperature of the bearing can be easily regulated by gas jets under the bath. Experiments showed that the bath need not be full; the results obtained were the same when it was so nearly empty that the bottom of the journal only

just touched the oil. The journal experimented on (see sketch annexed, Fig. 1) was of steel, 4 inches in diameter and 6 inches long, with its axis horizontal. A gun-metal brass, A, embracing somewhat less than half the circumference of the journal, and a continuous and an extension of the journal, and the circumference of the journal and the circumference of the ci ence of the journal, rested on its upper side. The exact arc of contact of this brass was The exact arc of contact of this brass was varied in the different experiments. Resting on this brass was a cast-iron cap, B, from which was hung by two bolts a cast-iron cross-bar, C, carrying a knife-edge. The exing moment just equal to the moment of

the moment  $w \times s$ .

Hence the co-efficient of friction friction at surface of journal

> w X s  $=\frac{r}{w}=\frac{w\times s}{w\times r}=\frac{s}{r}$

w  $\times r$  r

So that the coefficient of friction is indicated by s in terms of r, no matter what the weight is. As an example, suppose s was equal to  $r_i$ ; the coefficient of friction would obviously be I; or if s was  $f_0$  of r, then the coefficient of friction would be  $f_0$ .

In order to avoid the difficulty of determinished expectations are supported by the proof of the coefficient of the knife when was

mining accurately when the unifie edge was perpendicularly under the center of the journal (a knowledge which was necessary in order to obtain a measurement of s, and which was very difficult to obtain, owing to the considerable friction between the brass

friction at starting, and it gradually diminished until the normal friction was reached after about 10 minutes' continuous running. This increase of friction was accompanied by a strong tendency to heat and seize, even under a moderate load. In the case of one brass which had worked for a considerable time without accident, and had consequently become worn so as to fit the journal very become worn so as to fit the journal very accurately, this tendency to increase of friction after reversal almost entirely disappeared; and it could be reversed under a full load without appreciable increase of friction or a tendency to heat or seize. The phenomenon must be due to the surface fibers of the metal, which have been for some time stroked in one direction, meeting point to point and interobling when the act distance from the edge of this knife-edge to the center of the journal was 5 inches.

On this knife-edge was suspended the cradle D, which carried the weight applied to the bearing. The cap, bolts and cross-bar were put together in such a manner as to form a rigid frame, connecting the brass with the knife-edge. If there had been no friction between the brass and the journal, the cap with the strength of the ced with the experiments in the following between the brass and the journal, the cap with the contact, the phenomenon did not show itself. In consequence of the above facts, it was found necessary to proceed with the experiments in the following order. A counter where the contact of experiments in the following order. between the brass and the journal, the weight would have caused the knife-edge with a gradually increasing load was taken to hang perpendicularly below the axis of the journal. Friction, however, caused the journal to tend to carry the brass, and the frame to which it was attached, round with it, until the line through the center of the it, until the line through the center of the line through journal and the knife-edge made such an angle with the perpendicular that the weight, multiplied by the distance from the knife-edge to that perpendicular, offered an opposition of the property into conditions the property in the such and the same and half an hour, so as to get it thoroughly ing moment just equal to the moment of friction.

Suppose r = radius of the journal (Fig. 3), s = distance of the knife-edge from the perpendicular, w = the weight; then  $s \times w =$  the moment of friction.

Now, the friction at the surface of the journal the moment  $w \times s =$  t

instances been taken several hours apart.

This method of obtaining a direct indication of the coefficient of friction, by the angular displacement of the frame connecting the brass and knife-edge, would have un the brass and knife-edge, would have undoubtedly been the best had the coefficient of friction been nearly as constant as it has hitherto been supposed to be. But, as shown by the tables of results, the coefficient of friction was found, instead of being constant, to be very nearly inversely as the load, and also to be much smaller in quantity than and also to be much smaller in quantity than was expected; the consequence was that with high loads the hight of the diagram was very small. In the cases where with the greatest loads a coefficient of  $\tau_0^{1/6} \tau_0^{1/6}$  was observed, the distance between the two lines was only  $\tau_0^{1/6}$  inch. The results regarding olive oil, lard oil, mineral grease and sperm oil as applied by baths were obtained in this way. this way

Owing to these experiments showing that the moment of friction was much more nearly constant than the coefficient, it was

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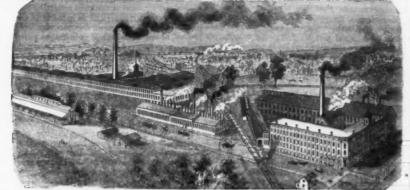
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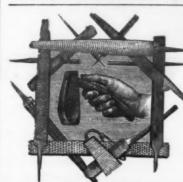
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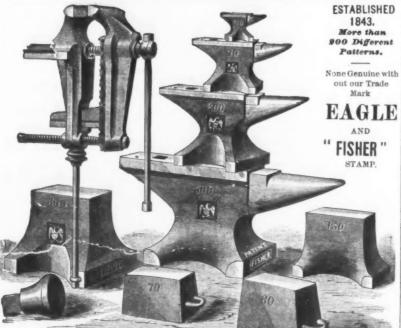
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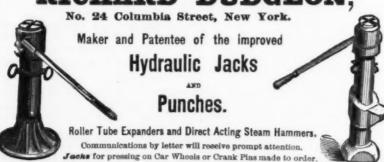


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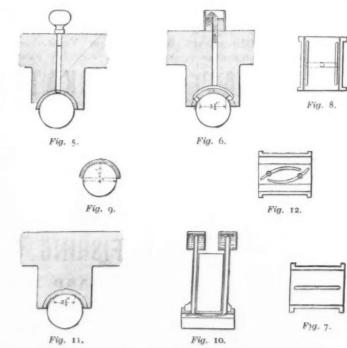
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of the coefficient. lever. The end of the small lever was pointed, and when the machine was working this point was brought exactly opposite a fixed mark by putting weights into a scale-pan on the end of the main lever. The main lever was so overbalanced that under all circumstances some weight was required to be added to the scale-pan in order to bring the end of the small lever to the mark, even when, the friction being greatest, the direction of motion of the journal tended most to depress it. The method of running in both directions and loading and unloading was followed, as before. The weights in both directions and loading and unloading was followed, as before. The weights in the scale-pan being noted, the moment of friction was given by half the difference between the weight in the scale-pan when running in one direction and in the other. Experiment showed that the friction varied considerably with temperature. All the oilbath experiments were therefore taken at a nearly uniform temperature of 90°; the variation above or below this temperature was never allowed to be more than 1 ½°.

purpose of ascertaining the greatest load removing all oil from it. It should be men-which could be carried with rape and min-eral oil in the oil bath. The greatest load edges of the groove, so as to prevent any scrap-

For this purpose the oil, subject to a pressure due to the load. paper cylinder was removed and a small paper cylinder was removed and a small lever, M (see Fig. 2), was connected to the main indicating lever in such a manner that the motion of the end of the main lever was gauges connected to various parts of the magnified five times at the end of the small brass, they would have shown that the pressure was highest in the middle and diminished to nothing toward the edges of the brass.

The experiments with ordinary lubrication were begun with a needle lubricator, the The hole from which penetrated to the center of the brass. A groove in the middle of the brass, and parallel to the axis of the journal, extended nearly to the ends of the bearing for distributing the oil (see Figs. 5 and 7). It was found that with this arrangement the bearing would not run cool when loaded with only 100 pounds per square inch, and that not a drop of oil would go down, even when the needle lubricator was removed and the hole filled completely with oil, thus giving a head of 7 inches of oil to force it into the brass. It appeared as though the hole and groove, being in the center of pressure of the brass, allowed the supporting oil film to escape. This view was confirmed by the folwas found that with this arrangement the cape. This view was confirmed by the following experiment: The oil hole being filled up to the top, the weight was eased off the journal for an instant. This allowed the oil to sink down in the hole and lubricate the was never allowed to be more than 1½. to sink down in the hole and lubricate the journal, but immediately the load was again experiments care was taken not to load the bearing up to seizing, in order that the condition of the brass might not be disturbed. In the later experiments the bearing was intentionally loaded up to seizing. Two sets of experiments were specially made for the purpose of ascertaining the greatest load which could be carried with rape and minimum to the hole and lubricate the to such a form in the hole and lubricate the to such as a special load was again allowed to press on the journal, the oil rose in the hole to its former level and the journal became dry, thus showing that this arrangement of hole and grows again allowed to press on the journal, but immediately the load was again allowed to press on the journal, the oil rose in the hole to its former level and the journal became dry, thus showing that this arrangement of hole and grove, instead of being a means of lubricating the journal, but immediately the load was again allowed to press on the journal, the oil rose in the hole to its former level and the journal became dry, thus showing that this arrangement of hole and grove, instead of being a means of lubricating the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the load was again allowed to press on the journal, but immediately the l tioned that care was taken to chamfer the



FRICTION EXPERIMENTS.

carried with the rape oil was 573 pounds per square inch, and the greatest load carried with the mineral oil, 625 pounds. In both of these cases the experiment was repeated after the brass had been taken out and scraped up, but with no better result. The general results of the oil-bath experiments may be described as follows: The absolute friction—that is, the actual tangential force per square inch of bearing required to resist the tendency of the brass to go round with the journal—is nearly a constant under all loads, within ordinary working limits. Most certainly it does not increase in direct proportion to the load, as it should do, according to the ordinary theory of solid friction. The ordinary theory of solid friction is that it portion to the load, as it should do, according to the ordinary theory of solid friction. The ordinary theory of solid friction is that it varies in direct proportion to the load; that it is independent of the extent of surface, varies in direct proportion to the extent of surface, and that it tends to diminish with an increase of velocity beyond a certain limit. The theory of liquid friction, on the other hand, is that it is independent of the pressure per unit of surface, is directly dependent on the extent of surface, and increases as the square of the velocity. The results of these experiments seem to show that the friction of a perfectly lubricated journal follows the laws of liquid friction much more closely than those of solid friction. They show that under these circumstances the friction is nearly der these circumstances the friction is nearly and the surface of the load. The brass around deal cut about by alternated to that usual in locomotive axle-boxes (see Figs. 10, 11 and 12). The oil was introduced through two holes, one near each end of the brass, and each connected to a curved groove, the two curved grooves nearly inclosing an oval shaped space in the center of the brass. At the same time the arc of contact was reduced till its chord was only 2 % inches. This brass refused to take its oil or run cool. It would sometimes run for a short time with an actual load of 178 pounds per square inch, but rapidly heated on the slightest increase of the load. The brass independent of the pressure per square inch, and that it increases with the velocity, though at a rate not nearly so rapid as the

the brass was out the opportunity was taken to drill a 1/2 inch hole for an ordinary lubricator through the cast-iron cap and the brass. On the machine being put together again and started with the oil in the bath, oil was observed to rise in the hole which had been drilled for the lubricator. The oil flowing over the top of the cap making a mess, an attempt was made to plug up the hole, first with a cork and then with a wooden plug. When the machine was started the plug was slowly forced out by the oil in a way which lubrication answer were not abandoned until

seized with an actual load of only 380 pounds

per square inch. slightest increase of the load. The brass having been a good deal cut about by alterand that it increases with the velocity, though at a rate not nearly so rapid as the square of the velocity. The experiments on friction at different temperatures indicate a very great diminution in the friction as the temperature rises. Thus, in the case of lard oil, taking a speed of 450 revolutions per minute, the coefficient of friction at a temperature of 120° is only one-third of what it was at a temperature of 60°.

A very interesting discovery was made when the oil-bath experiments were on the point of completion. The experiments being point of completion. The experiments being carried on were those on mineral oil, and the bearing having seized with 625 pounds per square inch, the brass was taken out and examined, and the experiment repeated. While the brass was out the opportunity. ily heated with a load of only 200 pounds per square inch.

The fact that this arrangement of grooves which is found to answer in the axles of rail way vehicles, was found to be perfectly use-less in this apparatus can only be accounted for by the fact that a railway axle has a continual end play while running, which prevents the brass becoming the perfect oiltight fit which it became in this apparatus slowly forced out by the oil in a way which showed that it was acted on by a considerable pressure. A pressure gauge was screwed into the hole, and on the machine being started the pressure, as indicated by the gauge, gradually rose to above 200 pounds per square inch. The gauge was only graduated up to 200 pounds, and the pointer went beyond the highest graduation. The mean load on the horizontal section of the journal was only 100 pounds per square inch. This experiment aboved conclusively that the brass was actually floating on a film of

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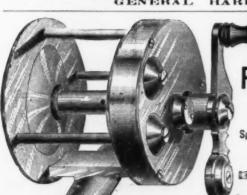
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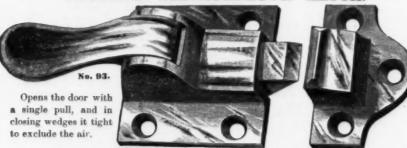
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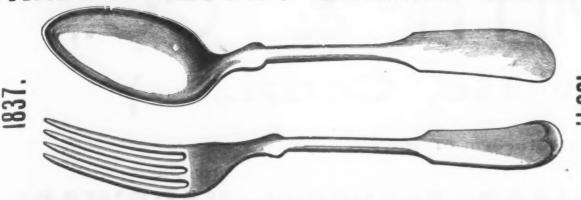
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ing. The pad was only supplied with oil by capillary attraction from the oil in the box, and the supply of oil to the journal was thus very small; the oiliness, in fact, was only just perceptible to the touch, but it was evenly and uniformly distributed over the whole journal. The hearing faith carried whole journal. The bearing fairly carried 551 pounds per square inch, and three observations were obtained with 528 pounds, but the bearing was on the point of seizing, but the bearing was on the point of seizing, and did seize after running a few minutes with this load. It will be observed that in this instance the bearing seized with very nearly the same load as it did in the oil-bath experiment with rape oil. These experiments with the oily pad show a nearer approach to the ordinarily received laws of solid friction than any of the others. The coefficient is approximately constant and coefficient is approximately constant, and may be stated as about  $\frac{1}{100}$  on an average. There does not in this case appear to be any well-defined variation of friction with variations of exactly appears to the state of t ments, as far as the approximate constancy of the moment of friction is concerned, but the amount of the friction is about four times the amount in the oil bath.

The results of the experiments on what is

called ordinary lubrication—that is, lubrica-tion by means other than that of the oil tion by means other than that of the oil bath—were not, as a subject, sufficiently regular to make them worthy of record. Indeed, the results, generally speaking, were so uncertain and irregular that they may be summed up in a few words. The friction depends on the quantity and uniformity of distribution of the oil, and may be anything between the oil-bath results and seizing, according to the perfection or inseizing, according to the perfection or im-perfection of the lubrication. The lubricaion may be so small as to give a coefficient of 100, but it appeared as though it could not be diminished and the friction increased much beyond this point without imminent risk of heating and se zing. The oil bath protably represents the most perfect possbile lubrication and the limit beyond which friction cannot be reduced by lubrication; and the experiments show that with speeds of from 100 feet to 200 feet per minute, he properly proportioning the bearing surfacy to the load, it is possible to reduce the conficient of friction as low as the Acoustic property property and the property property and the property property property and the property property property and the property prop efficient of friction as low as  $1_{000}^{-1}$ . A coefficient of  $\frac{1}{300}$  is easily attainable, and probably is frequently attained, in ordinary engine bearings in which the direction of the force is rapidly alternating and the oil given an opportunity to get between the surfaces, while the duration of the force in one direcion is not sufficient to allow time for the oil ilm to be squeezed out. The extent to which the friction depends on the quantity of the lubrication is shown in a remarkable manner in Table I, which proves that the lubrica-tion can be so diminished that the friction is even times greater than it was in the oil bath, and yet that the bearing will run with-

Observations of the behavior of the appa ratus gave reasons to believe that with per-fect lubrication the speed of minimum fric-tion was from 100 to 150 feet per minute, and that this speed of minimum friction tended to be higher with an increase of load, and also with loss perfect lubrication. By he speed of minimum friction is meant that speed in approaching which, from rest, the friction diminishes, and above which the friction increases.

Pable I.—Comparison of the Friction with the Different Methods of Lubrication, Under as Nearly as Possible the Same Circumstances.— Lubricant, Rape Oil; Speed, 150 Revolutions per Minute. Actual Coeffi- Compar load, its. cient of ative per sq. in. friction, friction. 263 0.00139 1.00

Syphon lubricator Pad under journal	272	0.00900	7.06 6.48
FABLE II.—Comparison Various Lubricants To Possible, the Same Circ 90°; Lubric tion by C	ried, Un	nder as Naces, Temp	early as
Lubricant,		resists	Mean ince, lbs. .0.484

N. B.—The above figures are the means of the actual frictional resistances at the surface of the journal per square inch of bear-ng at a speed of 300 revolutions per minute, with all the nominal loads from 100 ute, with all the nominal loads from 100 pounds per square inch. They also represent the relative thickness or body of the various oils, and also in their order, though perhaps not exactly in their numerical proportions, their relative weight-carrying power. Thus, sper moil, which has the highest lubricating power, has the least weight-carrying power, and, though the best oil for light loads, would be inferior to the thicker oils if heavy pressure or high temperatures were to be pressure or high temperatures were to be

The International Forestry Exhibi-tion.—We have received the prospectus and classed list of the Forestry Exhibition to be held in Edinburgh during the coming summer. This exhibition promises to be of great interest. It relates not alone to forestry proper, but will include everything certaining to wead growing and wead many forestry proper, but will include everything pertaining to wood growing and wood manufacture, including all forms of wood cutting and sawing machinery, wood-working tools and manufactures of wo d in every form, besides wood products, such as gums, resins, flax, wood oils, charcoal, and, in fact, everything included under the broadest and most liberal classification. The exhibition will be seen to buildest from all countries and its open to builders from all countries, and its intended scope is large enough to give it an unusual popular interest. The American exhibits in every line pertaining to forestry or wood-working, or to manufactures of wood, will be welcomed. Mr. Charles O. Le Count, of 29 Chambers street, New York, correspondent of Elgin & Gilberiss. American

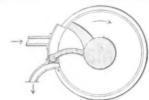
design is a pretty one, engraved by John A. Lowell & Co., and bears the inscription, "Our Compliments and Wishes for a Prospercus Year." Between the leaves containing the months of the year are brief references to the various goods manufactured by the concern.

## The Inventions of Watt.\*

EDWARD A. COWPER.

(Concluded.)

There are two very striking inventions of steam engines altogether different from the steam engines previously spoken of, and acting in a different manner. One is a rotary engine, Fig. 17. and the other a semi-rotary engine, Figs. 18 and 19. In the rotary engine there is a piston, fixed as an arm, in a radial line to the shaft to be turned, and the cylinder of the engine fits the piston in its revolution, there being at one point a flap-valve, hinged to the inside of the cylinder, while its other end rests on the shaft, so as to form a cylinder b ttom, or point d'appui for the steam to act against when acting also



The Inventions of Watt .- Fig. 17 .- Rotary Engine.

on the piston. This flap-valve is at a slight angle to a radial line, so that when the piston comes round it can heave it up so as to get past. This is about the simplest form of rotary engine that can be conceived, and has probably been reinvented 50 times since

The semi-rotary engine, Figs. 18 and 19, has likewise a pi-ton fixed in a radial line to the shaft to be turned, and the cylinder fits the piston as it moves backward and forward through a considerable arc of the circle fixed inside the cylinder at one part is a

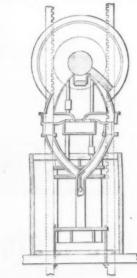


Fig. 18.—Front View of Semi Rotary Engine.

stationary stop or cylinder bottom, for the steam to act against either way, as it acts against the piston in either one direction or the other. It was intended to let the recip-rocating shaft act with a spur wheel on two recating shart act with a spur-wheel on two racks attached to the pump-rods. There is an unfinished model of this engine in the "Watt Room" at Heathfield Hall, which the author has examined; no doubt this was partly made by Mr. Watt's own hands. In a letter of Mr. Watt's, dated September 27,

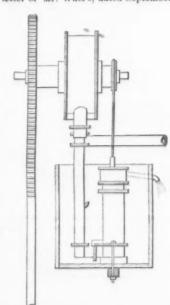


Fig. 19.-Side Elevation of Semi-Rolary Engine

1782, he speaks of this model having been made, so far, in 1765 or 1766. It remains now to give some description of the more important articles found in the "Watt Room" at Heathfield Hall, the resiexhibits in every line pertaining to forestry or wood-working, or to manufactures of wood, will be welcomed. Mr. Charles O. Le Count, of 29 Chambers street, New York, correspondent of Elgin & Gilchrist, American factors at Glasgow, will fu nish all information to intending exhibitors, and authorizes us to tender his services in forwarding and arranging for the proper exhibition or care of any articles or tools sent from this country.

"Watt Room" at Heathfield Hall, the residence of our member, Mr. George Tangye, who, as before mentioned, has kindly photographed many articles for the institu ion. The room is about 20 feet by 16 feet 6 inches in size, and really is a go d attic, and nothing more, with one long, low window only 5 feet 4 inches from the top to the floor, so that it was a bad light for any machine a few feet from the window, and it is a wondownty. Mr. Charles F. Curwen, of the Salem Foundry and Machine Shop, Salem, Mass., sends us a very neat 1884 calendar. The

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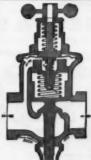
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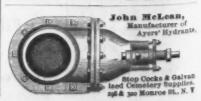
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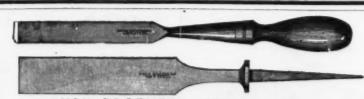
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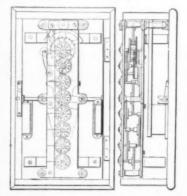
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window, with his tools about, and his old leather apron on the vise, and his centerpunch tied with a piece of catgut to the vise, to save him the trouble of looking for it or picking it up There are now a number of busts on a bench in the room, and some busts on a bench in the room, and some marble and alabaster for working on. At the fireplace there is his old frying-pan and his Dutch oven or "hastener," and outside the door, on the landing, a little shelf on which, it is presumed, his meals were placed.

Besides these things there are two large machines for sculpturing marble, alabaster or wood, and a few smaller half-finished or wood, and a few smaller half-inished models, such as the semi-rotary engine just named, and a "counter" for counting and recording the number of strokes that an engine makes. This is constructed on the intermittent principal—that is to say, the first wheel has ten teeth, and when it has received nine impulses from nine strokes having been made, the touth stroke not only. having been made, the tenth stroke not only turns the first wheel one-tenth, but this wheel, owing to its having a raised tooth at that particular place, turns the next wheel one-tenth also, thus scoring one tooth on the second wheel, and so representing ten strokes, and so on throughout the series, so



The Inventions of Watt .- Fig. 20 .- Engine Counter at the South Kensington Museum, England.

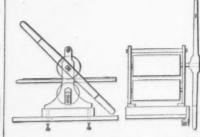
that when 999 strokes have taken place, the next stroke, in fact, moves all three wheels, which then show ooo, and the fourth wheel goes one tooth suddenly, and thus shows

There is a modification of this counter, Fig. 20, at the South Kensington Museum, in which there are seven wheels and pinions, all geared together, the wheels having 100 teeth and the pinions 10 teeth, so that all the wheels are always moving when one moves. This is a very safe instrument, but is not quite so clear to read. It is believed that these are the first "counters" that were ever made-at all events to go to millions, as these do.

as these do.

An exceedingly simple but handy plan of blocking-up anything to a given hight is shown in Fig. 24, being, in fact, only a pair of "folding wedges," but with a number of notches into which a pin can drop, and so keep them from sliding when at almost any exact hight. In this room the author found a large number of little slips of copying paper, with various receipts for making copying ink, and in one corner of the room a small "letter-copying screw press," that would take in such slips conveniently (Fig. would take in such sips conveniently (rig. 23), and the screw was only of wood, but powerful enough for the light work it had to do. This is shown in Watt's 1780 patent, together with his "letter-copying roller press" (Figs. 21 and 22), of which there is also an example at South Kensington, together with his old desk, in which he had a pair of small rollers fitted for the same purpose. of small rollers fitted for the same purpose. These two last belong to Mrs. Bennett Wood-croft. The drugs on the shelves were many of them for the purpose of making the "copying-ink powders" that Watt used to sell at ninepence a packet, and of which there are some dozens now at Heathfield Hall. It is believed that he sold these on his own

The next machine to be noticed is a very remarkable one, when we consider the date at which it was made. It is a machine for



Figs. 21 and 22.—Letter-Copying Roller Press

sculpturing or copying a bas-relief of the same size as the original. The machine con-sists, first, of an ordinary lathe, with treadle and fly-wheel to supply the motive power, and, secondly, of two tall uprights about 7 feet high, carrying at the top a slide on a strong horizontal bar, the slide being capa-ble of motion horizontally, either at a slow ble of motion horizontally, either at a slow or quick speed. Then, hinged to this slide, is a light square frame of metal, and, at the outer edge of this, another light square frame of metal is hinged, so that the lower edge of such frame is capable of motion up and down, or in and out, like an elbow joint, and horizontally when the top slide is moved.

The weight of these frames is balanced by

The weight of these frames is balanced by vers and balance weights and chains above levers and balance weights and chains above, and the lower edge of the second frame is furnished with a "feeler" or "guide" to traverse over the original model, and a "drill" driven at a high speed by a light cord to cut the work or copy, so that by handling the feeler carefully and tracing over the original in all directions, a piece of marble or alabaster or wood, placed in the machine of anabaster or wood, piaced in the machine alongside of the original, is cut to a perfect copy by the machine without fear of any mistake, and without any special skill on the part of the operator. The slow motion to the slide above, carrying the frames and "feeler" and "drill," is worked

and nests of small drawers with tools in them, some of them very excellent tools, and his small lathe and bench stand at the when cutting, and the quick motion can be thrown into gear with the lathe-wheel to run back. The quick motion has a coarse traversing screw, having a nut in halves that can be closed or opened; and the slow motion has a fine-threaded screw with a similar nut, so that it also can be thrown into gear or released. A handkerchief is wrapped around a part of one frame, in such position that one could put one's head against

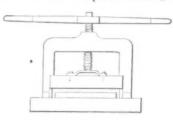


Fig. 23.—Letter-Copying Screw Press.

it, to push it up off the work at pleasure, besides moving it by hand. There is a noticeable feature in the frames above mennoticeable feature in the frames above mentioned, and that is, that in order to prevent their springing or going "winding," they are practically formed into "solids" by the erection of the outlines of a pyramid on each; this gives extreme stifiness to them, at the expense of but very little weight. This the author considers an extremely ingenious method of preventing a framing from going "winding," and one that he has not seen before.

After searching the room over, two speci-

After searching the room over, two specimens of work were found, one a finished original bas-relief, and the other the unfinished copy of it. Both the original and the copy can be mounted in their places in the machine, and be turned precisely together by a pinion gearing into the two wheels on the mandrels of the carriages on which the articles are placed, so that "undercutting" could be properly accomplished, as well as straight cutting into the work by the "drills."

The drills, circular cutters and other cutting tools are excellent, some being formed for roughing out, apparently, and made to cut in steps—i.e., to take several light cuts—and some in the forms of globes with the whole surface formed into numerous cutting edges, so that it was a cutting globe, so to speak, and could go anywhere, as it would

cut in any direction.

There was also a sculpturing machine making a copy of a reduced size. After searching the room thoroughly, two "masks" or half-faces were found, the one eight times the size of the other, and the smaller one undoubtedly executed in this machine. The machine consists, firstly, of a lathe bed, with fly-wheel and treadle for obtaining the motive power for driving the drill; secondly. of a stout hollow tube forming a long lever fulcrumed at one end on a joint," so that the other end can be moved in any direction about the center. This lever carries a "feeler" or blunt point near



Fig. 24.—Folding Wedges for Blocking-Up Anything to a Given Hight.

its outer end, and a "drill" near the fulcrum, so that, whatever motion the "feeler" has, the "drill" has, say, one eighth part as much. Thus, if a bust or mask (in this case a plaster cast) is placed on the slide provided for it under the "feeler," and such "feeler is carefully traced all over it, the "drill" will cut a piece of material placed under it, on the slide provided for it, to the same

on the side provided for it, to the same form, except that it will be one-eighth the size of the original. The lever is balanced.

The slides above named slide on the bed of the lathe, and are moved by a "pentagraph," or arrangement of levers, to give one-eighth as much motion to the work to be cut as to the original, so that every dimension shall be in reprosition. A further motion that sion shall be in proportion. A further mo-tion is provided for turning round the original and the copy, as is sometimes necessary when undercutting a bas-relief, and, of course, when copying the round figure. One example, and one only, was found of the round figure, viz., an unfinished head and bust in wood—so small that no doubt it was done in this machine from a larger original. It would appear that the machines just described were used by James Watt probably as a mere amusement for his leisure during the latter days of his life, for they do not appear to have been patented by him or in any way brought before the public. It is to be hoped that in the pursuit of this hobby he found agreeable relaxation and relief after the laborious life which he had long led.

In conclusion, the author would draw attention to the general effects produced by the inventions of James Watt:

1. In 1769 there were many Newcomen

engines at work pumping (in fact, Watt's attention was first drawn to steam engines by having to repair a model of a Newcomen engine), and the effect of his invention was to work pumping engines more economically

and quickly.

2. In 1781 he produced rotative power for driving factories, obtaining it, in a manner, by having a heavy balance-weight to act one way while the steam acted the other way however, the obtaining rotative motion by steam was an enormous advantage, far greater in its effect, in the author's opinion, than the improvement in the pumping engine

engine.
3. The crowning invention of 1782 made the steam engine the one useful motive power by making it double-acting, and fit to drive cotton mills, flour mills and all other machinery requiring regular rotative motion. The general effect of the invention on the manufactures of the world, and first, of course, on those of this country, is so wide-spread that it cannot be estimated; it has cheapened production to a marvelous extent, has in very many instances been the means

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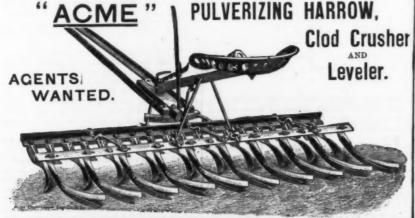
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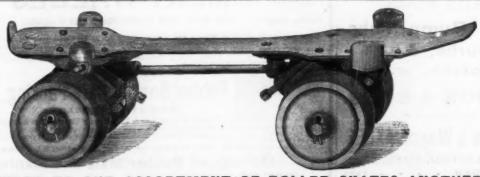




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Production of Pig Iron in the United States in 1882 and 1883.

Statistics Collected from the Manufacturers by the American Iron and Steel Association.

PRODUCTION OF ALL KINDS OF PIG IRON IN 1982 AND 1888, BY STATES.

I dai Froduction of Fig Iron	i, in Tons	of 2000 lbs.
States.	1882.	1883.
Maine	4,179	4,400
Vermont	1, 210	
Massachusetts	10,335	10,760
Connecticut	94,842	19,976
New York	416,156	381,964
New Jersey	176,805	138,773
Pennsylvania	2,449,256	2,688,891
Maryland	54,524	49,153
Virginia	87,781	152,907
North Carolina	1.150	
Georgia	42,440	45,364
Alabama	112,765	172,465
Texas	1.821	2,381
West Virginia	78,220	88,398
Kentucky	66,522	54,629
Tennessee	187,602	188,968
Ohio	698,900	679,648
Indiana	10,000	9,950
Dlinois	360,407	287,657
Michigan	210,195	173,185
Wisconsin	85,859	51,893
Missouri	118,644	103,296
Minnesota	8,126	8,000
Utah	37	
Colorado	93,718	24,680
Oregon	6,750	7,000
California	987	5,327
Washington Territory		2,317
ma v		

Washington Territory		2,3
Total	5,178,122	5,146.9
Production of Charcos	al Pig Iro	n.
Maine	4,100	4,40
Vermont	1,210	
Massachusetts	10,335	10,70
Connecticut	24,842	19,97
New York	80,716	25,68
Pennsylvania	49,975	38,31
Maryland	28,277	28,80
Virginia	26,133	16,87
North Carolina	1.150	
Georgia	15,565	13.04
Alabama	55,541	57,38
Texas	1,321	2.35
West Virginia		
Kentucky	17,165	13.98
Tennessee	87,611	85,29
Ohio	58,654	40,51
Indiana		444
Michigan	210,195	178.18
Wisconsin	55,369	89.84
Missouri	54,327	34,11
Minnesota	8,126	8,00
Utah	57	
Oregon	6,750	7,00
California	997	5,82
Washington Territory		2,31
Total	697,906	571,78

California Washington			997	5,827 2,317
Total			697,906	571,726
Production of		inous Iron.	Coal and	Coke Pig
Pennsylvania			945,635	1,184,108
Maryland				1,275
Virginia			61,598	136,028
deorgia			26,875	82,819
Alabama			57,224	115,080
West Virginia			73,220	88,398
Controler			49,357	40,648
Kentucky				
Cennessee			99,991	98,664
Ohio			640,246	639,115
ndiana			10,000	9,950
llinois			360,407	287,657
dichigan				******
Visconsin			30,490	12,544
Wisconsin			59,317	69,184
dissouri				
Colorado			28,718	24,680
Total			2,438,078	2,689,650
Th	41 4 1	L 4 E	JA - Tile To	

lew York.	385,440	306,284
lew Jersey.	176,805	138,778
Pennsylvania.	1,458,646	1,416,468
Jaryland.	96,247	94,071
Total	2,042,188	1,885,596

MISCELLANEOUS PIG IBON STATISTICS FOR 1882 AND 1883.

	Production According to Fuel	Used,	in Tons of
	Fuel used. Anthracite 9	1882.	18E3, 1,885,596
	Charcoal	697,906 488,078	571,726 2,689,650
	Total 5,	,178,122	5,146,972
	Production of Pig Iron in Ce Tons of 2000 lb	rtain D	istricts, in
	Pennsylvania.	1882.	1888.
ı	Lehigh Valley	609,838	575,987
1	Schuylkill Valley	842,701	887,483
1	Upper Susquehanna Valley	201,867	165,629
П	Lower Susquehanna Valley	800.240	197 410

Schuylkill Valley	848,701 887,48
Upper Susquehanna Valley	201,367 165,68
Lower Susquehanna Valley	800,240 887,41
Shenango Valley	264,078 290,06
Allegheny County	358,840 592,47
Miscellaneous coke	822,717 801,56
Charcoal	49,975 38,31
Ohio.	
Hanging Rock coke	77,364 82,45
Mahoning Valley	258,478 244,26
Hocking Valley	78,770 48,43
Miscellaneous coke	225,634 268,95
Hanging Rock charcoal	55,546 88,18
Miscellaneous charcoal	3,108 2,39
STOCKS OF ALL KINDS OF PIG IR	ON UNSOLD AT THE

CLOSE OF 1882 AND 1888. Total Stocks of Unsold Pig Iron, in Tons of 2000 lbs.

	Jan. 1,	July 1,	Jan. 1
Now England			1884.
New England	9,866	18,222	12,48
New York	37,758	78,178	65,90
New Jersey	18,178	28,974	25,61
Pennsylvania	150,858	238,576	195,80
Maryland	7,260	6,700	10,899
Va., N. C., Ga. and Tex.	25,064	28,604	80,601
Alabama	20,068	14,402	9,531
West Virginia	4,268	5,817	1,900
Kentucky	11,186	7,056	8,216
Tennessee	18,392	27,546	80,047
Ohio	87,258	60,641	78,136
Michigan and Indiana	29,573	34,549	36,400
Illinois	896	14,401	
Wisconsin and Minn	5,801	15,594	6,340
Missouri	14,3203	17,576	21,641
Col. and Pacific States		806	5,827
Total	429,694	592,090	588,800
Stocks of Unsold	Anthraci	te Pig Ire	m.
New York	25,286	56,650	48,094
New Jersey	12,178	28,974	25,615
Pennsylvania	68,106	120,215	99,211
Maryland	1,787	3,304	4,500
Total	107,259	209,143	178,000
Stocks of Unsold Char 200	coal Pig 10 lbs.	Iron, in	Tons of

20	00 lbs.	21 011, 111	40110
	Jan. 1, 1883,	July 1, 1883,	Jan. 1884
New England	9,866	18,252	12,43
New York	12,550	16,528	17.90
Pennsylvania	10,341	8,950	11,33
Maryland	5,548	8,048	6.80
Va., N. C., Ga., & Tex.	19,152	15,229	14,48
Alabama	16,699	11,875	6,78
Kentucky	7,254	6.048	6,91
Tennessee	10,460	12,320	18,00
Ohio	28,314	21,488	25,25
Michigan and Indiana.	27,078	88,870	35,67
Wisconsin and Minn	5,801	7,608	6,84
Missouri	19,823	12,174	17.89
Col. and Pacific States.		806	5,88
Total	165,239	168,246	188,97

		Jan. 1, 1888.	July 1, 1883.	Jan.
	Pennsylvania	72,511	109,711	85,1
	Maryland		353	
	Va., N. C., Ga. & Tex	5,892	8,375	16.1
	Alabama	8,446	2,567	2.8
	West Virginia	4,268	5,817	3.9
	Kentucky	8,9:23	1,008	1.8
	Tennessee	2,992	15,1006	11.9
	Ohio	58,989	48,153	47.9
	Michigan and Indiana	2,500	672	7
	Illinois	896	14,401	
	Wisconsin and Minn		7,986	
	Missouri	1,600	5,40%	8,7
ì		-	-	-

Stocks According to Fuel Used Total ..... 429,694 592,020 533,800 Stocks of Pig Iron in Certain Districts.

24,029 11,173 7,985 22,045 17,272 88,194 10,241

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The Cleveland Twist Drill Company, of Cleveland, Ohio, are now making what may be termed a "Universal" countersink, illus-



Countersink.

Classification of Longwy Steels.

The following classification of the Longwy dephosphorized steels was translated from a recent issue of Le Semaine Industrielle:

No. 1—Hard; tempers well; tensile strength, 70 to 75 kg. per sq. mm. (about 51½ tons per sq. in.); elongation, 12 to 15 %.

No. 2; Hard; tempers; tensile strength, 65 to 70 kg. per sq. mm. (about 48 tons per sq. in.); elongation, 25 to 18 %.

in.); elongation, 15 to 18 f.

No. 3—Half-hard; tempers moderately well; tensile strength, 60 to 65 kg. per sq. mm. (about 441/4 tons per sq. mm.); elongation, 18 to 20 %.

No. 4-Half-hard; tempers slightly; ten-No. 4—Half-hard; tempers slightly; tensile strength, 55 to 60 kg. per sq. mm. (about 41 tons per sq. in.); elongation, 20 to 22 %. No. 5—Soft; tempers slightly; tensile strength from 50 to 55 kg. per sq. mm. (about 37½ tens per sq. in.); elongation, 22 to 24 %. No. 6—Soft; does not temper; tensile strength, 45 to 50 kg. per sq. mm. (about 33½ tons per sq. in.); elongation, 24 to 26 %. No. 7—Very soft; does not temper; tensile strength, 40 to 45 kg. per sq. mm. (about 33½ tons per sq. in.);

sile strength, 40 to 45 kg. per sq. mm. (about 30 tons per sq. in.); elongation, 26 to 28 f. No. 8—Extra soft; does not temper; tensile strength, 35 to 40 kg. per sq. mm. (about 26½ tons per sq. in.)

Failure of A. C. & C. H. Kloman.—A dispatch from Pittsburgh, dated February 8, says: The attorneys for various creds, says: The attorneys for various creditors to-day entered judgments up against A. C. & C. H. Kloman, as trustees for their father's estate, patents, leasehold, machinery, &c., to the extent of \$82,000, and had executions issued for that amount upon the property and effects now in the Superier Rolling Mill, with the intention of closing out the whole affair and winding up the business. Andrew Kloman, at his death, left to his sons, A. C. & C. H. Kloman, as trustees, certain patents and machinery for the manufacture of iron and steel. They operated the Superior Rolling Mill, as trustees of Andrew Kloman, deceased, under lease from the Manchester Iron and Steel Company. Some time ago they got into difficulty with works at Moundsville which they ran, and had to get an extension from their creditors. To day it was announced that they could no longer hold out against reverses and depressing times. Additional claims will increase the liabilities to \$150,000. If the patents and stock on hand can be isposed of to good advantage, creditors will receive full payment. The failure has been expected for some time.

The annual convention of the Amalgam ated Association of Iron and Steel Workers, to determine the scale of wages for the ensuing year from June 1, will be held in Pittsburgh on Saturday, April 5. Each dis-trict in the association will hold convention on the second Saturday in March, to elect delegates to the general convention and to suggest changes in the present scale

The Charlotte (N. C.,) Observer has had specimens of tin ore (cassiterite), just discovered at King's Mountain, 40 miles west of Charlotte, analyzed by Prof. George B. Hanna, Assistant United States Assayer. Seven snalyses showed the ore to contain 43.46 per cent. of tin. This discovery promises to be of very great value.

Total. 157,196 21,006 1,300 1,300 Tenneusee. 2,932 15,296 11,396 Owing to the depression of trade in the Owing to the depression of trade in the Owing to th

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Metallurgical Review.

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THE IRONMONGER, Weekly, and THE IRON AGE, Monthly In the United States and Canada... In Great Britain and Ireland...... In other countries..... .... \$5,75 OF 258 ..... 3,25 OF 258 ..... 5,75 OF 258

# Our Tariff History.

In connection with the tariff-reform movement and the probable action of the representatives of the people from different sec tions of the country upon tariff measures in Congress, it is of interest to note the votes upon the tariff bills since the foundation of the present form of government as an indication of the state of public sentiment.

For convenience of reference and to avoid repetition the country is divided into sections, as follows:

New England States .- Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island.

Middle States .- New York, New Jersey, Pennsylvania, Delaware, Maryland and West Virginia. Western and Northwestern States .- Ohio.

Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Nebraska and Colorado. Southern and Southwestern States -Vir-

ginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Florida, Louisiana, Texas, Arkansas, Kentucky and Tennessee

Pacific States .- California, Oregon and Nevada.

By way of illustration whether the tariff some leading item of iron are taken as the The figures are the votes in the House of Representatives on the tariff acts named.

The first tariff act was passed on July 4, 1789, by the First Congress, but no vote is recorded. The duties, however, on iron, cut, hoop, slit and rolled, were 71/2 per cent.; nails, I cent per pound; spikes, cut iron, I cent per pound; steel, unwrought, 56 cents per cwt., and iron and steel wire free. Pig June 6, 1874; 1875, February 8 and March iron is not mentioned.

Under the tariff acts of 1790 and 1791, the same except the duty on unwrought steel, New England States, except Rhode Island, named: were divided, giving 5 votes for and 9 votes against the act of 1790. These same States, including Rhode Island, on the act of 1791, which fixed an increased duty on steel, cast a solid vote of 17 for the act. The Middle States, except, of course, West Virginia, were divided, casting 17 votes for and 3 votes (New York, 1, and Maryland, 2) against the act of 1790, and 13 votes for and 8 votes (New York, 2; Pennsylvania, 3, and Maryland, 3) against the act of 1791. Southern States, Virginia, North and South Carolina and Georgia, gave 17 votes for and I against the act of 1790, and 5 votes

for and 13 against the act of 1791. The Northwestern, Southwestern and Pacific States were not in existence. Thus we find the New England and Middle States sustaining increase of duties, and the South opposing such a step.

Under the acts of 1792, '94, '95 and '97, 1800, '4, '7, '8, '12, '13, '15, and February 5 1816, there was a steady increase of rates of duties from 10 per cent. on iron, as above ; 2 cents per pound on nails and spikes, and \$1 per cwt. on wrought steel, in the act of 1792, to 2 cents per pound on iron, 4 cents per pound on nails and spikes, and \$2 per cwt, on steel in the act of 1816. Iron and steel wire in the last-named act, for the first time were made dutiable at 35 per cent. Pig hoop, slit and rolled iron at \$2.50 per cwt. nails, iron and cut, at 3 cents and 4 cents a pound; steel, unwrought, \$1 per cwt. (a reduction), and coal at 5 cents a bushel. The votes on the principal acts enumerated stood | the demands were for greater reduction. as follows :

States.	179%.		1804.		Apr. 27, 10	
	yea	nay	yea	nay	yea	nay
New Eng'd, except (	14	2	23	none	17	10
Middle	16	5	84	none	44	10
Western (Ohio) Southern and S. ) W., including in			1	none	4	none
1804 Ky. & Tenn. and in 1816 La	7	18	40	none	28	34

The tariff of 1804, which was adopted without a dissenting vote, re-enacted the increased duties of the tariff of 1797, viz. Iron, I cent per pound; nails and spikes, cents per pound, and steel, \$1 per cwt. In the act of April 27, 1816, the duties on many articles had reached their maximum up to that date, and on other items there was a reduction. The West-then Ohio-cast her first and solid vote for the tariff. There was a marked division of tariff sentiment in the New England and Middle States-in the latter New York contributing 2, Pennsylvania 3 and Maryland 5 of the opposition votes. The Southern States cast a majority against high tariff. In this section South Carolina, Kentucky and Tennessee alone cast a majority of their delegations favorable to the higher rates. North Carolina cast her II votes in a body, and Virginia 7 out of 13 votes against the act of 1816.

After the act of April 27, 1816, came the tariffs acts of 1818, 1819, 1824, 1825, 1828 (May 19 and May 24), 1830 (May 20 and May 29), 1832 (July 13 and 14); and under the operation of the act of March 2, 1833, the acts of 1836, 1841, and as in force June 30, 1842, and the act of August 30, 1842 and 1846. The votes on acts of 1832, 1842 and 1846, all notable acts in the history of tariff legislation, were

States.	18	92.	1842.		1846.	
States.	yea	nay	yea	nay	yea	nay
New England	17	17	26	7	9	19
Middle	52	18	54	10	18	44
Western and N. W	18	none	18	18	29	10
Southern and S. W	45	30	10	69	58	20

Under these acts, iron-old and scrapwas reduced from \$12.50 per ton in 1832 to \$10 a ton in 1842, and fixed at 30 per cent. in 1846. Pig iron, 621/2 cents per cwt. in 1830, was reduced to 50 cents per cwt. in in 1832, \$9 a ton in 1842, and 30 per cent. in 1846. Cut, hoop, slit and rolled iron, 3 cents a pound in 1832, was reduced to 2½ cents a pound in 1842, and 30 per cent. in 1846. Iron for railroads, 1 cent per pound in 1832, was 2 per cent. in 1842, and not specified in 1846, and steel, in 1832 \$1.50 per cwt., was free in 1842, except in bars, \$2.50 per cwt., and in Shenango Valley and Allegheny County. 1846 it was dutiable at 20 per cent. Coal, 6 (Pittsburgh, it may not be out of place to recents a bushel in 1832, and \$1.75 per ton in mark, is in Allegheny County.) Heretofore 1842, was placed on the free list in 1846. It the most productive pig-iron district in the will be observed by the votes that the New State, and therefore in the country, has been erally are profoundly interested in the soluprotective tariff of 1842 by an overwhelming majority, while the Western States were a tie, and the Southern States were six to one against protection. In the case of the low tariff of 1846, we find the New England and Middle States voting about two to one was favorable or unfavorable, the duties on against the bill, and the West and South about the same proportion for it.

In the progress of tariff legislation we find the act of 1846 followed by the acts of 1857: 1861, March 2, August 5 and December 24 1862; 1863; 1864; 1869; 1866, March 16, May 16, June 1 and July 28; 1867, March 2 22, 25, 26 and 29; 1868, February 3 and July 20; 1869, February 19 and 24; "1870, July 14 and December 22; 1872, May 1 and 3; 1879; 1880; 1882, May 6 and December 23, and the act of March 3, 1883. The duties on the above articles remained the following were the votes on the tariffs of ingly large. Both the last-named States the reporter by affecting to be a rabid free 1857, 1861, 1866, 1875 and 1883, indicating which was increased to 75 cents per cwt. The the state of public sentiment in the sections

States.	18	1857. 1861		Mar.	1866,		
Gustos.	yea. nay		yea.	nay.	yea.	nay.	
N. Eng. States Middle States Western & N. W. States	18 24 14	9 28 33	23 44 28	none 9 12	28 40 27	none 14 29	
Southern & S. W. States Pacific States	60 2	none		21	1 4	6 none	
States.			18	72.	18	88,	
States.			yea.	nay.	yea.	nay.	
New England State Middle States Western and N. W. Southern and S. W. Pacific States	Stat	es	17 30 53 46	6 28 18 8	24 49 61 15	1 92 33 57	

The tariff act of 1857, which made reductions in the duties in certain articles below The production of these sections was as folthose in the tariff of 1846, as pig iron from 30 to 24 per cent.; bar iron from 30 to 24 per cent.; steel in ingots from 20 to 15 per cent., was sustained by a majority of the New England States and the solid vote of the South, while the Middle States were nearly equally divided and the West was decidedly against the bill. In the tariff of 1861 the duties on all articles were raised to a higher rate to meet the requirements of the Government in meeting the expenses of the rebellion of the Southern States. Scrap iron was rated at \$6 a ton; pig iron at \$6 a ton; iron bars at \$15, and steel at 11/2 cents per pound. The act of 1866, in addition to being protective, was also framed to furnish revenue for the payment of the heavy drains upon the resources of the Government. The act of 1872, which established the rate at 90 per cent. of existing duties, met with most opposition in the Middle States and least opposition in the West and South. The bill of 1883, making further reductions, and which was regarded as a compromise bill, was generally accepted, except at the South, where

The Morrison bill, which has just been introduced, goes a step further than the act of 1883. It not only establishes the rate of duty on the various schedules, including metals, at 80 per cent. on existing duties, but prohibits the imposition on metals of any rate in excess of 50 per cent. ad valorem or its equivalent, and places iron and other ores on the free list. This system of reduction was applied in the tariff act of 1872, in which the duties on iron and its manufactures were placed at 90 per cent. of the then existing duties.

## The Production of Pig Iron by States.

In another part of this issue will be found the details of the production of pig iron in the United States for 1883, by States and districts, as compared with the production for 1882, which have been made public by the American Iron and Steel Association. In connection with the statistics of production, the details of stocks are also given. These statistics present some curious facts. It will be found that, although the aggregate production of the country differed very little in 1883 from 1882, yet the difference was very great in many of the States, some of them largely increasing their output and tracts are made, less the amount paid for others as heavily diminishing their productransportation on foreign vessels. It is tion. Prominent among the States showing a gain in 1883 over 1882 is Pennsylvania, which is followed in the order of increased tonnage by Virginia, Alabama, West Virginia, California, Georgia, Texas, Colorado, Massachusetts, Maine and Oregon, while Washington Territory, which made no pig iron in 1882, figures among the producers in 1883. The State showing the heaviest loss in tons in 1883, as compared with 1882, is Illinois, followed in order by New York, New Jersey, Michigan, Wisconsin, Ohio, Kentucky, Mis souri, Maryland, Connecticut, Tennessee, Minnesota and Indiana, while Vermont, North Carolina and Utah Territory, which produced pig iron in 1882, made none in 1883.

Pennsylvania never attained so large an output in any year as in 1883. Her gain over 1882 was nearly 200,000 net tons, which was all in bituminous pig iron, as the production of both anthracite and charcoal pig iron decreased. The prominence of Pennsylvania among the pig-iron producing States is forcibly shown by the percentage of the whole output of the United States which she contributes. In 1882 this percentage was 48, but in 1883 it reached 51, or a little over half the country's entire product. The gain in Pennsylvania in 1883 was in the Lower Susquehanna district, the net tons, against 575,987 tons in the Lehigh The prominent position thus gained Valley. maintained for a long time, as the conditions are all favorable. The gain in the Southern States has been marked, but is not so large as has been predicted. The following table shows the production of the three leading Southern pig-iron producing States in 1883, as compared with 1882:

Net tons. Net tons 172,465 112,765 152,907 87,731 133,963 137,602

459,335 338,098 It will be observed that Tennessee actually decreased in production, but in Alabama and Virginia the increase over 1882 was strikdoubled their production of coke pig iron. Kentucky and Georgia rank so far below these three States in production that we have not included them in this exhibit of the matter which present themselves for Southern progress. Kentucky shows de- consideration. First, the statement may be creased production, however, while in true, but the manufacturer whose views are

Georgia there was a slight increase. The relative rank of the different sections of the country in the production of pig iron can be shown by dividing the States into the following groups: Northeastern, embracing all the States east of Ohio and north of Maryland; Southern, all the States usually considered as constituting the South, except that we have ourselves heard such senti-Pennsylvania and West Virginia, north of describes. Second, the explanation given in the by-laws of the Window-Glass Workers'

the Rocky Mountain and Pacific slope States.

lows in 1003, as compared	WILL 1002 :	1
Northeastern Southern Western	. 699,260 577,275 .1,263,694 1,487,131	
Pacific	. 89,894 81,512	I
Total	.5,146,970 5,178,199	1

## The American Merchant Marine.

Various bills affecting American shipping interests have been introduced at the present session of Congress, but very few of them have attracted much attention. They cover all kinds of projects, from the old and very familiar one permitting the privilege of purchasing ships anywhere, to the equally venerable one authorizing lucrative mailcarrying contracts with exclusively American built and American owned vessels. Some of these bills have been heard from since their reference to committee, but others have evidently been consigned to oblivion. The measure receiving the most favorable consideration, and which appears reasonably certain of being made the basis of practical legislation, is that brought forward by Mr. Dingley, member of the House of Representatives from Maine. Mr. Dingley has paid very great attention to this subject, and, as he comes from a State vitally interested in shipbuilding and shipowning, his views have been received with greater favor than if he were a mere theorist with a hobby. He was the author of a shipping bill which came very near passing both Houses of Congress last winter.

The bill which he has recently introduced removes orreduces the restrictions in the form of special taxes, dues, fees and antiquated regulations which have so long hampered the owners of American vessels when competing with the vessels of other nations that levy no such burdens on their marine, Mr. Dingley's bill has been considerably amended by the Senate Committee on Commerce, who have reported a bill which not only removes or reduces the vexatious burdens of which our shipowners justly complain, but provides for more liberal payment to American vessels for carrying the mails. The amount to be so expended by the Government is limited to the gross revenues of the Post-Office Department on mail matter sent to and received from foreign countries during the fiscal year next preceding the year in which the contransportation on foreign vessels. stated that, taking last year as a basis, this aggregate would be from \$1,600,000 to \$1,700,000. In order to guard the interests of the Government in the distribution of this fund, the Postmaster-General is authorized to contract with American vessels for a sum not exceeding \$1 per nautical mile for a round trip, and the contracts are to be made with the lowest bidders. A clause in the bill allows a drawback of 90 per cent. on the duties paid on imported materials used in the construction of vessels built in this country for foreign account, whether the vessels are built wholly or in part of foreign materials. Also, vessels engaged in the foreign trade, or between the Atlantic and Pacific ports, are to be permitted to withdraw free of duty from bonded warehouses all articles of

foreign production for their supply. The sentiment of the Senate Committee or Commerce is strikingly shown in the fact that the bill referred to received their unanimous report, though a minority was author ized to offer an amendment providing for the admission of foreign-built ships to American registry and the importation of shipbuilding materials free of duty. The prospects seem favorable for the passage of the bill in the shape in which it came from the Senate Committee, as the House Committee on The united action of these two committees the Lehigh Valley, but in 1883 Allegheny tion of the ship problem, and the amended crease in the foreign commerce of Australasia, County rose to the head, producing 592,475 Dingley bill contains so many features to commend it to popular favor that its passage will certainly be regarded as an immense by Allegheny County will undoubtedly be stride in the direction of the restoration of our merchant marine to its ancient promi-

In our issue for January 31 we commented on some remarkable assertions in favor of free trade, attributed to Pittsburgh manufacturers by the New York Herald. have received from the gentlemen alluded to no denials of the truth of the statements made by the Herald reporter, but we have been informed privately that the printed interview with the prominent steel manufacturer whose name was withheld by the Herald was a "huge joke," the manufacturer in question having purposely misled trader, his true sentiments being in favor of protection. We are not impressed with this explanation. There are three points about quoted may be dismayed at the storm he has created, and now desires to extricate himself from a position which certainly exposes him to much unfriendly criticism in a city so ing the reporter's statement is the fact

would certainly be playing a very stupid joke in pretending to entertain free-trade sentiments when he knew that his views, as expressed to the reporter of a prominent metropolitan newspaper, would be circulated in every direction and used to the disadvantage of his own cause. Third, it is incredible that a dyed-in-the-wool protectionist would express such views, even in jest. The sentiments of manufacturers on questions of political economy are usually as strongly implanted as their religious or political principles. A devout Baptist would not be likely to masquerade as a Methodist to the editor of a Methodist newspaper and find fault with immersion, and we could not possibly conceive of a true Democrat pretending, for jocular purposes, to be a Republican and bewailing the errors of his party to the reporter of a Republican news-

## Utilization of Gas Products in Blast Furnaces.

A great deal of attention is being paid in England to the utilization in the production of ammonia and other substances of the waste gases from blast furnaces using raw coal. It has been estimated that \$1,000,000 a year of clear profit has been thrown away in Scotland alone-not through ignorance of the value of the products contained in these waste gases, nor from the absence of methods of utilizing them, but merely from want of a simple trial as to whether or not the ordinary methods of recovering ammonia were capable of application to these gases. At several large furnace plants efficient systems have already been adopted, and have been in use long enough to indicate their value. Some furnace proprietors have even ventured the opinion that in course of time the production of pig iron in blast furnaces wil ! be a secondary matter; that the iron could be sold at the cost of production, and a large profit still be made from the furnace working by reason of the value of these products that have heretofore been allowed to waste,

At the Gartsherrie works of the Bairds, near Glasgow, all of the gases from the furnaces are washed and condensed before being sent to the hot-blasts. The result is not only the saving of the ammonia and other products, but the gas, being thus cleaned, does not clog up the stoves. The expense of cleaning is reduced: the biast is delivered with less loss by friction, and the heat secured is greater. It may be that at the present time in this country, where there is not the demand for ammoniacal products that there is in England, this project would not be economically successful, but it is nevertheless well for our furnacemen to keep close watch of these operations. It is also an interesting additional evidence of the fact that has been made so prominent in past years, namely, that the profit in the future in iron-making will in many cases be derived from what is now wasted.

# Australian Development.

The people of South Australia have apointed Robert Dixson, a member of the Australian Parliament, as commissioner to obtain exhibits for a world's fair to be held at Adelaide, in 1887, in commemoration of the founding of the Colony. Mr. Dixson is now in this country, and will spend about four months visiting New York and other American cities. The cost of the exhibition is estimated at \$1,500,000, and \$900,000 has been appropriated for the construction of a permanent building, the Government assuming responsibility for the entire expenditure. The resources comprise a near-by population of about 300,000, and of about 3,000,000 in the group of Colonies. The exhibitions at Melbourne and Sydney proved highly beneficial Shipping have agreed to adopt and report it. to the Colonies, and the Adelaide exhibition is expected to be as attractive in every par-

> some detailed statistics respecting the inwhich, although not fresh, are apparently published for the first time. The figures generally indicate a condition of considerable commercial activity. The record of the gross value of imports and exports by Colonies, with the gain between the years 1872 and 1882, was :

£		Imports	Increase
E	New South Wales	£21,361,180	#ince 1872, £12,072,634
-	New Zealand	8,609,270	2,144,583
Θ	Queensland	6,318,463	4,009,746
0	South Australia		3,906,217
- 1	Tasmania		863,690
B	Victoria Western Australia		4,876,886
0	Western Australia	508,755	282,099
	Total	£63,844,859	£98,945,558
		Exports	Increase
3	Want thank Wales	1862.	since 1872.
	New South Wales New Zealand	£16,716,961	\$6,269,912
	Queensland	6,658,008 8,554,458	1,047,687 585,718
Ц	South Australia	5,879,890	1,021,967
,	Tasmania	1,587,389	677.096
- 1	Victoria	16,198,579	2,508,957
	Western Australia	588,065	878,859
8	Total	000 000 001	040 000 000
ы	Total		
	The highest ambition of	of the Col	onies just

now is to form a political confederation, apparently for purposes of mutual protection rather than independence.

Referring to our article in last week's ssue entitled "The Close of the Window overwhelmingly devoted to protection as Glass Lockout," we desire to make a correc-Pittsburgh. A very strong reason for credittion. The statement in regard to the restriction of production needs a slight modification, which the following explanation will make Missouri; Western, all the States west of ments from the lips of just such a man as he clear. Heretofore, under the old restriction Kentucky and east of Colorado; Pacific, all seems to be very weak. A protectionist Association, if any one man about a furnace

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at a given furnace must be 48 boxes before anything is to be paid into the association. In other words, if, under the old rule, in a 10-pot furnace, nine pots or workmen made only 40 boxes a week and one made 55, though the average would be less than 48 to the whole furnace, the man making the 55 boxes had to pay what he received for the extra seven boxes into the association. Under the new rule the furnace can make 180 boxes before anything is paid in, though though two or three men may have made 50 or 55 boxes.

## Russian Oil Fields.

According to apparently well authenticated reports, the American export trade in petroleum is seriously menaced by competition from Russia. Now that petroleum has become an article of great importance among our exports, the statements lately coming to hand seem worthy of attention. For the year 1883 our total exports of petroleum, as officially reported, reached the handsome figure of nearly \$48,000,000, which was a gain of about \$3,000,000 over the previous twelve months, and just now petroleum is more than ever an important item in maintaining a favorable balance of Russian reports show that rapid advances have been made in the development of the Baku oil region, the total production having risen from 30,000,000 gallons in 1875 to 200,000,000 gallons in 1882. Americans who have some out there have done much to introduce improved methods. The information received from that quarter is generally too indefinite to be satisfactory, especially as to the quality of the merchantable article. Mr. Charles Marven, a newspaper writer of some repute, who claims to have made a thorough exploration of the oil district, says, in a London pamphlet, just issued: "A pe-'culiarity of the Baku petroleum is its high specific gravity as compared with American having the same boiling point. It gives 10 per cent more light than American, and is more readily drawn up the wick to the flame-The high specific gravity is availed of by manufacturers of lubricating oil, who send into European markets an oil of .940 specific gravity, without any extraneous addition." enormously productive. One that he saw last and prosperity. September was "spouting nearly 300 feet high, and ejecting 2,000,000 gallons of oil per diem!" Already, if we may believe Mr. Marven, this oil has to a great evtent superseded American oil in the Russian market, and is making its way via the Volga and by rail into Southern Europe. Can the American exporters maintain themselves indefinitely against such competition ?

We conclude this week Mr. Cowper's paper on the "Inventions of Watt," the first portion of which appeared in our issue of January 31 of the current year. The exceptional facilities which the author had in inspecting the early models, and the fact that the engravings are careful reproductions of the drawings made from them, contribute in no small measure to the value of the paper. Aside from its historical interest, it is of the utmost importance, showing in several instances the original crude forms of instruments which in the course of time have developed into appliances now so well known and practically indispensable in steam engineering. It was found necessary to make suitable selection from the mass of available particulars, and as some of the models were simply duplicates of others, slightly varied in form, only the most important of them are considered. Watt's patents were regarded as probably the most reliable for the dates of his inventions, and these were cons which were not shown in the patents and some drawings of which there were no corresponding models. On the whole, Mr. Cowper's attempt to furnish an interesting historical sketch of the subject has been eminently successful, and careful perusal of the paper will, we think, sustain this opinion.

Strenuous efforts to secure a reference to arbitration of the dispute over the attempt to enforce a reduction of to per cent. in wages have been made by the unionists employed at the Eston Steel Works of Bolckow Vaughan & Co., near Middlesboro', England, where a lockout is now in progress. Mr. Windsor Richards, the manager, decidedly refuses to accept arbitration. Mr. Richards's ground for this is not opposition to the principle of arbitration, but he has deliberately me to the conclusion that it is impossible for his works to continue running without this reduction of 10 per cent., and he believes that were the question to be submitted to arbitration, and anything less than 10 per cent. reduction awarded, he still would not be able to give the men work, so he honorably prefers to be put in the position of opposing arbitration rather than to enter into it, and if it should go against him, indirectly, by stopping his works, refuse to abide by result of the submission. This is certainly honorable. A striking example of how large bodies of men will allow themselves to be in-timidated by a very small, compact organiza-tion is given in this strike. At the Eston Steel Works some 3000 men are employed. Of these all but 137 are non-unionists. All of the non-

made more than 48 boxes a week he was unionists have agreed to accept the reduction ment of the United States on mail matter compelled to pay the amount received for the of wages, but at a meeting of the unionists overproduction into the association. Under recently, at which a ballot was taken, a the new rule the average of all the workers majority of these 137 resolved to stand out, and, as a result, the works are idle.

> The people of New Orleans are expecting to have a grand World's Exhibition in that city next December, and have commenced the erection of buildings. The main structure will be 1400 by 900 feet, ground dimen sions, comparing well in respect to size with the exhibition building in London. Machinery Hall will extend the entire length. Mexico will have a conspicuous position, although, perhaps, not overshadowing. eral Diaz, who heads the Mexican Commission, is giving to the preparations his personal supervision, and a battalion of Mexican troops will give dignity to the approaching occasion by their presence. The merchants of New Orleans claim to take a special interest in Mexico as their nearest neighbor, and do not mean to be circumvented in any way by St. Louis and Chicago, who also are expecting to profit from the improved railway connections with the Mexican capital and intermediate States.

The Ways and Means Committee of the House of Representatives have very properly decided to permit interested person to ap pear before them in relation to the Morrison tariff bill. The disposition of several of the committee to grant no hearings was very marked, but the majority were not disposed to act upon a measure of such importance without giving the people whose business is directly affected by the proposed legislation an opportunity to express their views. The day fixed for the consideration of the metal schedule is Saturday, the 16th inst., at which time, we presume, the metal interests of the United States will be represented before the committee by a large delegation.

An approaching event of considerable imortance is the completion of the Mexican Central Railroad Company's main line to the United States. This event is announced officially to take place about the middle of The road will be open for through traffic between April 1 and 15. The connection by rail of the City of Mexico with the railroad system of the United States is an achievement which will undoubtedly mark According to this authority the oil wells are the beginning of an era in Mexican progress

# WASHINGTON NEWS.

THE MISSISSIPPI RIVER COMMISSION

February 6.-A bill was introduced in the Senate by Senator Gibson, to amend the act Senate by Senator Gibson, to amend the act of June 28, 1879, which created the Missisippi River Commission. It provides for the extension of the work of the commission to all the navigable tributaries of the Missispip River; for the increase of the membership of the commission from seven to nine, the additional members to be selected from the Engineer Corps of the Army, and for the Engineer Corps of the Army, and for the increase of the compensation of the civilian members from \$3000 per annum to \$4500 per annum. It also provides that the commission shall report to the Chief of Engineers and the Secretary of War, instead of, as now, directly to the Secretary of War, and that they shall report upon the "channel-dyke and training wall" system, as well as upon the jetty outlet and levee systems.

THE NEW SHIPPING BILL OF THE SENATE COMMITTEE ON COMMERCE.

February 7.—The Senate Committee on Commerce to-day authorized Senator Fryeto report for passage a new bill for the relief of American shipping. This measure has been prepared by the committee as a substitute for all the bills referred to it on the same general subject. Its main features are as follows: It grants authority, under cerconsidered. Watt's pat-ded as probably the most tes of his inventions, and uently obtained from such the most such that is a captain, of the probabilition of the pay ment of advance wages, under heavy penal-ties, is extended to foreign as well as Amersources. Many of the models agree with the patent drawings, but some were found law respecting three months' extra wages, repealing it in certain cases and in others limiting it to one month. Sections 4585, 4586 and 4587, Revised Statutes, relating to 4530 and 4537, herised Statutes, relating to the assessment and collection of a hospital tax for seamen, are to be repealed, and in their place it is provided that here-after the marine hospitals shall be main-tained at the expense of the United States. The bill further provides that all articles of foreign production may be withdrawn from bonded warehouses for the supply of vessels engaged in the foreign trade, including trade between the Atlantic and Pacific ports of the United States, free of duty. A draw-back of 90 per cent. is allowed on imported materials used in the construction of vessels built in this country for foreign account, whether such vessels are built wholly or only in part of foreign materials. [Under exist-ing law the drawback is applicable only to vessels built entirely of foreign materials.]
The individual liability of a shipowner is to be limited to the proportion of any debts or liabilities that his individual share of the vessel bears to the whole, and the aggregate liabilities of all the owners of a vessel shall not exceed the value of such vessel and pending freight, The law which authorizes the Post-Office Department to detain any Amer-can vessel bound for a foreign port, and place on board the United States mails, compelling her to deliver them at the post office of the foreign port for 2 cents a letter, is to be repealed. In lieu of it the bill provides that the Postmaster-General shall be authorized to contract with American vessels for car rying United States mails to and from forsent to and received from foreign countries during the fiscal year next preceding the year in which the contracts are made, less the amount paid for transportation on foreign vessels and the net amount paid foreign postal administrations for intermediary territorial and sea transit of such vessels is understood that, taking la-t year as a basis, this aggregate would be from \$1,600,ooo to \$1,700,000.] The bill practically adopts what is called the "Dingley section" as to the tonnage tax, reducing it upon vesels trading with certain foreign ports to 3 cents a ton for each entry, the aggregate for a year not to exceed 15 cents a ton, and with certain other foreign ports to 6 cents per ton an entry, the aggregate not to exceed 30 cents a ton. This bill received the unanimous support of the Committee on Commerce, but a minority was authorized to offer an amendment to the bill in the Senate providing for the admission of foreign-built ships to American registry and the importation of shipbuilding materials free of duty. With regard to the section which declare

to encourage shipbuilding a drawback of 90 per cent, is allowed on imported materials used in the construction of vessels built in this country for foreign account, whether such vessels are built wholly or only in part of foreign materials," John Alexandre, in part of foreign materials, John Alexandre, of F. Alexandre & Sons, owners of the New York, Havana and Mexican Line, sent a communication to Senator Frye, of which the following is the substance: "This secthe following is the substance: "This section will afford a great deal of relief to all connected with American shipping interests, as well to the builder as those running vesas well to the builder as those running vessels, and particularly to lines running to foreign countries. From our experience, since 1867, running to Cuba and Mexico under American and British flags, we would go still further than the proposed bill, as follows: 'To encourage American shipbuilding a drawback shall be allowed the owner of all metericals of American requestions. materials of American production or manufacture used in the construction or repairs of an American vessel equal to the amount of duty on the same quantity and quality of foreign materials.' If this could not be secured, then the 90 per cent. clause should apply to American vessels engaged in the foreign trade. American shipping is bur-dened with every conceivable tax, National and State. If our line had not received, since 1867, a subsidy or mail contract from Mexico, we never should have been able to run a line of steamers between the two countries. The French Government has renewed its contract with the French Trans atlantic Line to run steamers to Cuba and Mexico monthly, and to pay a subsidy of \$2,000,000 annually."

THE NAVAL APPROPRIATION BILL

February 8.—The Naval Appropriation bill reported to the House to-day makes an appropriation of \$14,263,196, being \$8,392,-304 below the estimate of the Secretary of the Navy, and \$1,631,238 below the appro-priation of last year. The appropriation for the Naval Academy is the same as that of last year. For the construction of cruisers \$1,649,600 is appropriated, and for the care of ironclads \$5000.

# LABOR STATISTICS.

The House Committee on Labor has ordered a favorable report on Representative Hop-kins's bill for the establishment of a depart-ment of labor statistics. The measure provides for the appointment of a commission who shall acquire all useful information on the subject of labor, its relations to capital, and the means of promoting the material, social, religious and intellectual prosperity of the laboring men and women.

A VALUABLE PUBLIC DOCUMENT.

On January 7, 1884, Mr. Morrill, chairman of the Committee on Finance, reported from that committee a resolution authorizing the that committee a resolution authorizing the printing of the existing tar iff on imports into the United States, and the free list, together with comparative tables of present and past tariffs, and other statistics relating thereto. This publication, which will be ready in two or three weeks, will be of invaluable service in the tariff issue which is now inevitable in the political campaigns of the present year. It will be useful to the manufacturers as a means of comparison of the rates of duties at different times, and to the peeple at large, showing the effects of the various acts on imports and exports. The different heads of information are the ciprocity treaty, comparative tables of the tariffs from 1789 to 1883, inclusive; votes of the House of Representatives on the general tariff acts from 1789 to 1883, inclusive; the imports and exports and receipts from customs from 1790 to 1834, inclusive; the same from 1835 to 1883, inclusive; merchandise, value of exports and imports, 1835 to 1883; gold and silver coin and bullion, imports and exports 1835 to 1883, inclusive; merchandise, value of, imported, entered for consumption, 1867 to 1881, inclusive; and commodities, principal, amount of duties collected on, 1869 to 1883, inclusive. ARGUMENTS ON THE TARIFF.

The chairman of the Committee on Ways and Means says, in explanation of the action of the committee on last Thursday, designating Wednesday, February 13, for a hear ing of representatives of the cotton interests under the tariff; Thursday, February 14, for wool; Saturday, February 16, for metals, and Monday, February 18, for earthen ware and glassware, that these arguments are to be confined to the general subject of the interests of the articles under the whole schedule, and not to any one class of articles. Any statements by experts must be sub-mitted in writing and sent to the committee when they will be printed for the use of the committee. It is intended to report the bill to the House by the 1st of March.

THE RECOINAGE OF TRADE DOLLARS. February 11.—The House Committee on Coinage, Weights and Measures to-day agreed

to report a bill for the exchange of the trade dollar for standard dollars or for their receipt for Government dues within two years. It provides for their recoinage into standard dollars, and that the bullion shall be counted against the monthly purchases of bullion at bullion rates. The action of the committee was not unanimous, and the bill as it now stands will be opposed by Mr. Bland, chair man of the committee. He purposes offering an amendment to strike out that portion of the bill which provides that the coins shall be counted as bullion against monthly purchases.

STEAMSHIPS AND THE MAILS.

February 11.—The Senate shipping bill, as reported last week by Senator Frye from the Committee on Commerce, was taken up by the House Shipping Committee to-day, and Representative Hunt was authorized to report to the House a bill covering such features of the Senate bill as are not embodied in the Dingley bill.

THE REPEAL OF INTERNAL REVENUE LAWS. February 11.—The following communica-ion was addressed to Chairman Morrison, of the Committee on Ways and Means, to-da The undersigned, who are in favor of the repeal or modification of the internal revenue laws, respectfully request a hearing before your committee at as early a day as may be convenient." This was signed by Congressmen Dibrell, Caldwell and Taylor of Tennessee, Cabell of Virginia, Green and Scales, of North Carolina, and Clemens, of Georgia. Mr. Dibrell, who is one of the leaders in the movement, states that he could easily have obtained 40 or 50 signatures to the letter had he deemed it necessary or expedient. There is a probability that the subject of the modification of the revenue laws will be brought before the House on a bill introduced by Mr. Green last week. Misled by its title, "To encourlast week. Misled by its title, "To encourage the cultivation of fruits," the Speaker allowed it to be referred to the Committee on Agriculture. It simply repeals the internal revenue tax on brandy made from grapes and all kinds of fruit. Mr. Green said to-night that seven of the members of the Mr. Green sa ommittee had agreed to report it favorably. When reported it will be subject to a reference to the Ways and Means Committee and its friends propose to get a test vote or the motion to refer if they can.

SENATOR BECK ON THE MORRISON BILL. Senator Beck, in conversation on the sub ject of the Morrison bill, said: "I believe if the Committee on Ways and Means report the right kind of a bill on tariff reform, i not only pass the House, but the Senate. The Morrison bill fairly expresses the Demo ratic idea of tariff reform, and as a ba legislation on the subject is about as fair a statement of the theory of reform as we could have. I believe in the Democratic party taking a position on this subject, not simply in party platforms, but by the passage of a bill essentially Democratic in its principles. The Morrison bill may be modified, but I presume not materially. Its course in the House will be closely watched, particularly as regards the conduct of party eaders for and against the measure fact, it may change the relations of men to parties, not only Democrate, but Republicans. I believe that the disposition to reduce revenue is very general. In the tariff act of 1872 there was a reduction of rates, but, nder the cry of providing for the sinking fund, the rates were restored. This time The action of that plea will not work. Finance Committee of the Senate, of which I am a member, and of the Senate, will depend much upon the kind of bill the House sends up. I have no right to say what other Senators may do, but I can imagine such Senators as Ingalls, Plumb, Van Wyck, and perhaps Sabin, voting for lower rates. We might lose McPherson, but I think that is all. In my opinion, with a fair bill we can carry the Senate. This will then make a fair issue before the people. If they wish further re-duction, they will have the issue in the campaign, and the people can then decide for themselves whether they wish further reduction."

reduction." GOVERNMENT EMPLOYEES AND THE EIGHT-HOUR LAW.

The bill recently introduced by Representative Hopkins has excited much inquiry on the part of the members of districts in which public works are in operation. It is said that the bill, if passed, will open an endless subject of adjudication. The following is text of the bill :

A bill to pay to employees of the Government

wages hitherto withheld in violation of the eight-hour law. Be it enacted, &c., That whoever, as a laborer, workman or mechanic, has been employed by or on behalf of the Government of the United States since the 18th day of May, 1872, the date of the approval act constituting eight hours a day's work by the day, shall be paid for each eight hours he has been amployed as forced. he has been employed as for a full day's work, at the price per day called for by the contract under which he was so employed.

Sec. 2. That all claims for labor so performed in excess of eight hours per day are hereby referred to the Court of Claims, to be adjudicated upon the basis that eight hours constitute a day's work, and are to be

paid for as such, at the price per day called for by the contract, express or implied, under which the labor was performed, and judgment given against the United States in favor of each claimant for the amount found due, to be paid as other judgments the Court of Claims against the United

# TRADE PUBLICATIONS.

Iron Beams

We have just received from Mesars We have just received from Messrs. Chas. G. Eckstein & Co., of New York, a book of sections of the Luxembourg Mining and Saarbrucken Iron Works Company, Limited, of Burbach, Germany, manufacturers of beams, channels and angles of all sizes, for which company they are the sole agents for the United States. The best which contains illustrations of the contains illustrations of the contains illustrations. States. The book, which contains illustra-tions of full-sized sections, is about 12 x 16 inches, and contains 32 double-page plates, each illustrating a number of sections. The general conditions of sale and remarks upon the table of safe loads, which are contained in the first few pages, are, for convenience, written in German, French, English and Italian. Following are a number of tables giving dimensions, area of section, weights, moment of inertia, moment of resistance and safe loads of I-beams, the loads being in in kilograms and the dimensions in meters and milimeters, the table being calculated for distances between supports of from 1 to 12

meters, varying ½ meter at a time. Besides these tables in the book there is a supplemental card, the dimensions and resistances being, however, given in British units, which is very convenient as saving a vast amount of troublesome recalculation. Passing on to the plates, we find the book filled with shapes illustrating great varieties of section, including a large number of I-beams of dif-ferent dimensions, besides the ordinary channel bars, T-irons, &c.; also a great num ber of beams of peculiar section, applicable in special kinds of construction. Among se latter we may draw attention to Plate, which is devoted to a number of differently formed and dimensioned iron railway sleepers. The sections, we presume, illustrate the ordinary forms as used abroad, the rail being fastened down by an iron chain which is bolted to the sleeper. The necessity for the introduction of iron sleepers upon railways, or at least some substitute for the wooden ones ordinarily used, being so generally felt, this page of plates will de-serve more than a passing interest. On looking over the different shapes illustrated in this book, there are two features which will particularly attract the attention of rolling-mill men and constructors. The first point is that in the majority of the Saarbrucken I-beams the fillets between web and flange are reduced to a minimum, thus giving far straighter flanges than are ordinarily rolled in this country. This has the advan-tage of giving to the beam equal strength This has the advan and at the same time a somewhat diminished section. Whether the increased difficulty of section. Whether the increased difficulty of rolling does not more than counterbalance the slight saving in material is somewhat questionable. The second point which will attract attention is the excessive thickness of web and diminished width of flanges as compared with the American beams. questionably, the relative thickness of metal in flanges and web are such in these beams as to avoid those internal strains consequent upon the differences in the periods of cooling which will always result where there is a great difference between the thickness of the flanges and the thickness of the web. Naturally this makes a heavier beam without increasing its strength, and an examination of the table of strains of the different sections, as compared with the American beams, shows that the German standard sections snows that the German standard sections exceed the American slightly in weight per yard for equal coefficients of safe load. The fact, however, that the German beams are rolled to depths of 16, 17, 19 and 21 inches, while the deepest American beam rolled at the present time is 15 inches, will strongly commend them to the use of architects and builders, as well as for the floor beams of bridges, as a most acceptable substitute for the compound riveted girder of equal strength

# Iron Railings, Fencing, &c.

We have received from the Composite Iron Works Company, Reade and Church streets, an advance copy of their catalogue of patent composite iron railings, gates, &c. The catalogue is one of the finest devoted to this line of goods that it has ever been our pleasure to examine. In size it is approximately 10 x 14 inches, contains some 75 pages, and is printed upon a fine quality of book paper, the illustrations being of unusual excellence and clearness. By referring to some features of its contents, we think we shall be able to give our readers a general idea of its excellence. On the inside titlepage a view of a gateway on Boston Common is presented. This work was erected by the Composite Iron Works some time since, and serves in this connection as a very pleasing introduction to the line of goods shown. The second page is devoted to a description of composite chilled ironwork, and is illustrated by a diagram showing the construction employed in railings, gates and other work Following this is a general view of the estab lishment of the company at Long Island City. lishment of the company at Long Island City, L. I. A second illustration shows an interior view of the foundry, and represents workmen engaged in various kinds of work, from blacksmithing to "pouring off." The scene is animated, and is well calculated to impress the reader with the magnitude of the estab lishment described. The succeeding page shows still other giews in the works of company, wherein various lines of work are being performed. On the fifth page the catalogue proper commences, and it and succeeding pages contain a large assortment of gates, fencing and railing, embodying the construction peculiar to this company Among the specialties may be mentioned composite lawn fence, hurdle lawn fence, iron lawn guards and wire-cloth netting fence. Following the latter are a number of designs of pipe railing suitable for ceme-tery work and similar places. A large as-Following the latter are a number sortment of designs of iron posts are next presented, following which are representations of a folding safety gate which this company manufacture. Two pages are devoted to views of wrought-iron gates erected for James Gordon Bennett at Newport, R. I., and William Astor, at the same place. We mentioned these two designs some time since from proofs of the places. Several designs of heavy wrought-iron and composite iron gates are next presented, showing adapted for use in almost every possible sit uation. Cast-iron railings for stoops of city houses, and wire area gates and cast-iron railings for city yards, in rustic and other designs, complete this part of the book. designs, complete this part of the book. Some designs of circular stairs, wrought-iron shutters and wrought-iron doors are next given; then several designs of iron verandas and iron summer-houses, which in turn are followed by lawn goods, embracing foun tains, settees and iron tree guards. designs of opera chairs are shown, some iron bedsteads are given, and the book closes with illustrations of window guards, and opera-house gates so constructed as to fold out of the way when not in use. The letter-press and illustrations are handsomely executed, and the book is one that will give pleasure to all who have occasion to exam

The Havana Gazette has published a royal decree that invoices of all merchandise imported into Cuba must be certified by the Spanish Consul as the port from which the merchandise is shipped. This is indispensable for custom-house entry and approval of captains' manifests.

## Special Notices.

## RECENT BOOKS.

Hand Book of Artistic Penmanship.

By D. T. Ames; oblong; paper,
75 cents; cloth . . . \$1.00

This little manual abounds with full-page plates of script alphabets, flourishes and fancy pieces. The introduction treats of the materials adapted to fine, artistic penwork, and contains valuable instruction in the art of penmanship. Fine examples of scroll work are represented, and several plates are devoted to alphabets specially adapted for marking goods and packages.

Teale, T. P.—Dangers to Health; Pictorial Guide to Domestic Sanitary Defects. Fourth edition, \$3. Watts, H.—Manual of Chemistry. \$2.25. Wilson, G.—Handbook of Hygiene and Sanitary Science. \$2.75.

## FOR SALE BY

# DAVID WILLIAMS,

83 Reade Street, New York.

# LARGE SALE

No. 110 Spruce St., Philadelphia, M. THOMAS & SONS, Auctioneers,

## Valuable Machinery, &c., COMPRISING

About 150 tons of Small Pieces of Old and New Machinery, Scrap Iron, Tools, &c., Cotton and Woden Machinery, 1500 Pulleys and Hangers, 500 feet Shafting, 500 Steel Reeds, 1400 feet Belting, Large Loi Gearing, Bolts, &c.; 100 Lathes, Drills, Steam Engines, Small Bollers, Presses, &c.; also Farrell & Herring Fire-proof Safe, Office Furniture, &c.,

TO BE SOLD AT PUBLIC SALE AT 10 O'CLOCK, No. 110 SPRUCE STREET.

M. THOMAS & SONS, Auct'rs, Nos. 137, 139 & 141 S. Fourth St.

May be examined 3 days previous to the sale,

# E. BISSELL & CO., Wholesale Hardware Auctioneers

83 Chambers and 65 Reade Sts., N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

# For Sale.

Half interest in first-class Foundry and Machine Shop, doing good business and owning valuable patents. Other business cause of selling. Address E. H. HASTINGS.

Bath, N. Y., or, 5 Bowling Green, New York City.

# For Sale.

A 1-ton Helve Hammer, built by Merchant & Morgan, Alliance, Ohio. Drawings of the same furnished on application

NORWAY STEEL & IRON CO., South Boston, Mass.

# Wanted.

A young man (one corresponding in German preferred) with a thorough knowledge of the Wire, Wire-Rod and Hoop trade of the U.S. A good opening to the right party.

" A. W," Address Office of The Iron Age, 83 Reade St., New York.

# Wanted.

A Partner in an established wholesale Iron, Stee and Heavy Hardware and Wood stock, A capital of from \$12,000 to \$15,000 required. The place is one of the best points for distribution of heavy " BOX 103," goods in the West. Address Peoria, Ill

# Wanted.

Proposals from responsible parties to manufac-ture on a small royalty a Patent Adjustable Metallic Tie, suitable for bailing large or small packages, wood and cotton included. Very large market awaiting its introduction; or will sell 28 South Delaware Avenue, Philadelphia, Pa.

# Wanted.

CAST AND WROUGHT TURNINGS,

Address, sumber of tons, &c., SITES & GILL. Address, stating lowest price, point of delivery,

222 and 224 So. Third Street, Philadelphia, Pa

Wanted.

Blast Furnace Manager, with 17 y ars' experence, wants a position. Age, 43 years. Address. "F.P.D."
Office of The Iron Age, 36 Clark St., Chicago, Ill. WANTED.—By a thoroughly posted Hardware and Stove Saiesman and Buyer, a responsible posi-tion. First-class leferences. Would like to go to California. Address

"RESPONSIBLE Office of The Iron Age, 83 Reade St., New York.

WANTED.

By an experienced Hardware man, both in Wholesale and Retail, a situation in a Wholesale Hardware House. Good references.

Address "BOX 148,"
London, Ontario.

WANTED.—A situation by a young man who has had experience in both wholesale and retail Hardware business; is willing to work, and can furnish first-class references.

Address

Office of The Iron Age, 83 Reade st., New York. FOR SALE.—To party with \$20,000 to \$25,000 cash capital, a good paying Hardware Business in Colorado. Good reason given for selling.

"BOX 2634,"
Denver, Col.

YOUNG MAN who has a thorough knowledge of the German language, capable of taking charge of a set of books, and has had 6 years' experience as Selling Agent for an iron Manifacturing firm, desires a position in the Spring in a West-rn Hardware firm. Best of references given. Address '49, '9, Office of The Iron Age, 83 Reade St., New York.

## Special Notices.

# ENGINES AND BOILERS.

	One 20 in. Cyl. by 42 in. Str ke Corliss Engine. One 12 in. " 42 in.
	One 8-in. " " 20-in. " "
9	One 1616-in. " " 20-in. " Upright Engine.
)	
	One 8-in. ' ro-in. " " Rider
3	
1	One 12-in. " " 16 in. " Hutchinson & Alexander
L	
)	
,	One 6-in. " " 10 in, "
,	One 10%-in." " 36-in. " Horizontal Engine.
	One 16-In. " 32-In. "
1	One to HP. Portable Engine and Boiler, on Wheels.
l	One 60 HP. Marine Boiler.
	One 25 HP. Locomotive Boiler.
	One 80 H. P. Horisontal Pubular Boller.
•	One 25 HP. " " "
	One 45 HP. "
	One 8 ft. by 40 in. Upright Boller, 22 HP.
	One 7 ft. by 36 in. " 15 ". One 5 ft. by 36 in. " 7."
	One 5 ft. by 30 in. " 7."
	One 36 in. by 3c ft Plain Cylinder Boiler.
	One 16 in. Upright Drill. Prentice.
	One 25 in. New Haven Mfg. Co.
	Une 38 In.
	One 12 in. Crank Planer. New York Steam Eng. Co.
	One Large Hydraulic Press, 10 in. Ram.
ı	One No. 3 Second Hand Root Blower.
1	Prices and description furnished on application.

# HENRY I. SNELL,

135 N. Third Street, Philadelphia. WILSON'S

"Automatic" Gas Producer.

(NEW PATENT.)

FOR FIRING STEAM BOILERS AND EVERY DESCRIPTION OF FURNACE.

The undersigned is open to receive offers for Wednesday Morning, Feb. 20, 1884, the manufacturing rights and sole agency for this valuable invention in the United States

A. WILSON, Tangye's Steel Works,

# Birmingham, England. A CHICAGO FIRM

doing a large wholesale business throughout the Northwest want to correspond with some reliable manufacturers of Merchant Iron, Steel, Nails, Railroad and Builders' Supplies, &c., not already represented at Chicago, with a view to the exclusive handling of their product in the Northwestern

Y. Z. & CO., Office of The Iron Age, 36 & 38 Clark St., Chicago, Ill

# Factories Wanted.

The strongest inducements in the West. A city four years old, contains 4000 inhabitants, on the C. & N. W. and B., C. R. & N. Railroads, with two more projected. Great coal-mining center; good country surrounding; lime and sandstone, brick clay and water in abundance. For further particulars

SECRETARY OF BOARD OF TRADE, What Cheer, Iowa [FOUNDED 1848.] PATTERSON BROTHERS,

PATTERSON BROTHERS,

27 PARE Row,

NEW YORK, January 31, 1884. 

The copartnership heretofore existing between H. A. PATTERSON, E. C. PATTERSON and M. C. KELLOGG, under the firm name of PATTERSON BROTHERS, expires by limitation, and is dissolved this day.

The successor of the said firm is PATTERSON BROTHERS, a corporation duly formed under the laws of the State of New York, which corporation will continue the Hardware and Metal business at the old stand, 27 Park Row, New York.

All outstanding accounts and contracts of the firm are assumed, and will be settled by the said corporation.

# For Rent.

A well-equipped Rolling Mill, with a secured custom, on favorable terms,

Address LOCK BOX No. 12. Philadelphia Post Office.

# Wanted.

A reliable party to represent in this country foreign Roilling Mill making the finer grades of Iron and Steel, including Wire Rods and Hoops.

" M. R-20.,

Office of The Iron Age, 83 Reade st., New York.

# WANTED, A SITUATION.

An Eastern American Iron Molder, foreman of a foundry in Pennsylvania, desires the foreman-ship of another foundry. Satisfactory reasons given; will refer to manager of company for whom he is foreman; also give first-class Eastern refer-ences if desired. Thirteen years on light and heavy work, part of time foreman. Address "FOUNDRY FOREMAN-26"

Office of The Iron Age, 83 Reade st., New York

W ANTED.—A situation as manager or traveling salesman in Hardware, Metals, House Furnishings, Cutlery or Lamp Goods, by an energetic, reliable man, with 12 years' experience, Last 5 years have acted as manager for large wholesale house in Canada. Best of references as to ability, &c. Would prefer an engagement with manufacturer to canvas wholesale trade in the United States.

"BOX 5856."

"BOX 585," St. Thomas, Ont., Canada

WANTED.—Situation as traveling salesman for a first class house, either in Hardware, House furnishing or Tool Line, by young man of six years experience on the road. Well acquainted throughout the States and Canada. Can give the best of references. Address

E. S., P. O. B. 299, New York City.

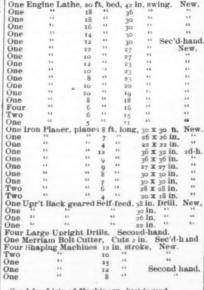
WANTED.—By a young man, with six years' experience on the road, a position to travel for a
first-class enterprising house who appreciate energy,
pluck and diligence, either on salary or commission,
in Hardware or House Furnishing line. Is well acquainted throughout the States and Canada, and can
give gite-dege references. Address "E.N."
Care A. G. Shattuck, 66 Nassau St., New York City.

# Wanted.

From 2 to 4 miles 16 lb. Light T Rails, second-hand, Address R BALLAUF & CO., Jefferson, Texas.

## Special Notices.

New and Second-hand



Send for Lists of Machinery, just issued.

THE GEO. PLACE MACHINERY CO., 121 Chambers St., New York.

# To Brass Foundries. to Brass Manufacturers

Our new foot press, for cutting off GATES from bras-sastings by FOOT power, is now ready. Weight, 2s ibs. Price complete, \$54, nex. A boy can operat-it easily. We warrant them to give the most perfec-satisfaction. PEERLESS FUNCH AND SHRAR CO... & W. Dey Street. & W York

# For Sale.

CAST IRON HOT-BLAST PIPES-THOMAS PATENT.

38 Hot-Blast Oven Pipes for Thomas Oven, in first-class order. Price, 1 cent per ib., cash, at our works. Size, 13 ft. x 9 inches. A bargain. SHOENBERGER, SPEER & CO., Pittsburgh, Pa.

# For Sale.

SHEAR FOR CUTTING STEEL RAILS. Weight, about 12 tons. Can be seen running SCRAP AND PLATE SHEARS.

A. G. BROOKS, 261 North Third Street, Philadelphia, Pa

# For Sale.

46 in. Column Drill Press. Wm. Seliers & Co. 24 in. x 24 in. x 5½ ft. Planer. 6 Small Drill Presses. Small Shaper. Pratt & Whitney. 3 Lathes, 20 in., 14 in., 16 in.

A. G. BROOKS, 261 N. 3d St., Philadelphia, Pa.

# For Sale.

Corliss Engine—One, 18 x 48 100 H. P. Woodruff & Beach Engine—One, 14 x 36, 60 H. P. Write for full particulars, ROBERT WETHERILL & CO., Chester, Pa.

FOR SALE.

To Furnace Manufacturers, Patent Exhibitors and others.

Arrangements can be made to work Sutcliffe's Self-Feeding Super-Heated Air Furnace. Patented in United States and a proved success in England, good royalties being obtained. The Patent Rights will be sold or shared with any respectable firm who will introduce it into the American market. Address
S. & P.,
Office of The Iron Age, 83 Reade st., New York.

FORE SAIJE.

Root Blowers, Nos. 36, 2, 4 and 7; Baker do., No. 436; Sturtevant do., Nos. o, 6 and 7; do. Exhausters, Nos. 22, 45, 33 and 39; Clark do. (Foundry); Baxter Engine (Colt's make, 6 H.-P., a bargain; Vertical do., 24 x 5; Horizontal do., 24 x 5; Horizontal do., 25 x 8; Horizontal do., 25 x 8; Gr. (Hewes & Phillips); Wafson No. 7. P. Forge. All kinds of machinery bought and sold on commussion for parties out of town.

C. R. BIGELOW, M. E.,
18 New Church Street, New York City.

## Hardware Dealers or Agents WANTED,

to whom a liberal discount will be made to sell the following

Second-hand Engines and Boilers

3 H.-P. Engine and Boiler, used 14 months,
5 Engine, used 3 months,
5 Engine and Boiler, used 15 months,
7 Fig. 1 1 1 27 44 " 27 " " 2 years. " 3 months. Also over soo New Engines and Boliers, all sizes, ready for immediate shipment. H. M. SCIPLE,

107 North Third Street, Philadelphia Wanted.

rails, wrought-iron turnings, cast-iron borings and burnt iron. Name quantity, lowest price and point of delivery.

JOS. J. LIPPINCOTT & CO., 131 South Fourth Street,

No. 1 wrought scrap iron, old iron and steel

## Philadelphia, Pa. Wanted.

Agents to sell Tubular Lantern Lighters everywhere. Fits all styles. Selis at 25 cents. 400 matches, 10 cents per box. Old styles made better than new. Self-Lighting Lamp Burners; turn a key and lamp is instantly lighted. Hardware Commercial men please notice. Address C. H. TYLER, 76 Beckman Street, Chicago, Ild. New York.

WANTED.—Position by a man of ten years' experience, as Traveling Salesman, in the Bar, Boiler Plate and Sheet Iron trade. Is a competent bookkeep er, 'orrespondent and Business Man, with best of references as to character and ability, Address "J. B.C." ability, Address "J. B.C." office of The Iron Age, \$3 Reade St., New York.

# Special Notices.

NEW AND SECOND-HAND

MACHINERY. 2 Horizontal Boring Mills. 3d-hand.
1 Engine Lathe, 26 in. swing, 10 ft. bed.
1 Engine Lathe, 26 in. swing, 12 ft. bed. New.
1 Engine Lathe, 20 in. swing, 27 ft. bed. New.
1 Engine Lathe, 20 in. swing, 27 ft. bed. Aband.
1 Engine Lathe, 20 in. swing, 27 ft. bed. 3d-hand.
1 Engine Lathe, 20 in. swing, 27 ft. bed. 3d-hand.
1 Engine Lathe, 18 in. swing, 27 ft. bed. 3d-hand.
2 Engine Lathe, 18 in. swing, 27 ft. bed. 3d-hand.
2 Engine Lathe, 18 in. swing, 27 ft. bed. 3d-hand.
2 Engine Lathe, 18 in. swing, 27 ft. bed. 3d-hand.
2 Engine Lathe, 19 in. swing, 37 ft. bed. 3d-hand.
2 Engine Lathe, 19 in. swing, 37 ft. bed. 3d-hand.
2 Engine Lathe, 19 in. swing, 3ft. bed. 3d-hand.
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3 Engine Lathe, 19 in. swing, 3ft. bed. New.
4 Engine Lathe, 19 in. swing, 3ft. bed. New.
4 Hand Lathe, 10 in. swing, 3ft. bed. New.
4 Hand Lathe, 10 in. swing, 3ft. bed. New.
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4 Hand Lathe, 10 in. swing, 3ft. bed. New.
5 Hand Insert to plane 26 in. x 26 in. x 26 in. x 36 in. x 16 in. x 1

If the list does not contain what you ant, write us,

J. M. BADGER, 49 DEY STREET, New York City.

# To Rent.

One-half of a Two-Story Brick Building, 400 x 60 feet. This building is situated in Bridgeport, Conn., on line of N. Y., N. H & H. B. R. It is ntirely new and is thoroughly heated by Hot Air, and lighted throughout by Edison Incan descent Electric Light. Any amount of Power car be furnished up to 250 Horse-Power. Terms

reasonable Address THE CORNWALL & PATTERSON MFG. CO..

## Bridgeport, Conn. Hardware.

An excellent opportunity to purchase an in erest in a long and well established Wholesale House and paying concern

"OPPORTUNITY," Office of The Iron Age, 13 W. 3d st., Cincinnati, O.

# Wanted.

HEAVY CASTINGS AND ROLLS. Wanted to buy Old Heavy Castings and Rolls of

all kinds. Address
MATTHEW GILL, Jr., & CO., 1240 N. 9th St. (below Thompson St.) Philadelphia

## Wanted. (Old)

IRON AND STEEL ROPE, and Iron and Steel of any kind. Address MATTHEW GILL, JR., & CO.

1240 North Ninth Street (below Thompson Street), Philadelphia A GENTLEMAN seeks engagement as Manager, Buyer or Salesman for Hardware or House Furnishing Goods; 25 years' experience, thorough qualification. Address "CAPABLE,"
Office of The Iron Age, 83 Reade st., New York.

## Special Notices.

# New & Second-Hand Machinery,

## Engine Lathe, 10 in. x 3½ ft.
1 each, Engine Lathes, 11 in. x 4 and 5 ft.
1 each, Engine Lathes, 11 in. x 5, 6 and 8 ft.
2 in. x 5, 6 and 8 ft.
2 in. x 6 ft.
2 in. x 6 ft.
2 in. x 6 ft.
3 in. x 6, 7, 8 and 10 ft.
2 in. x 6 ft.
3 in. x 6, 7, 8 and 10 ft.
4 in. x 6 ft.
4 in. x 6 ft.
4 in. x 6 ft.
4 in. any length of bed to 26 ft.
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SECOND-HAND. Engine Lathe, 16 in. x 6 ft. each, Engine Lathes, 18 in. x 6 and 8 ft. Planer, 24 x 94 x 5 and 6 ft.

1 90 x 90 x 8 ft.

2 90 x 90 x 8 ft.

1 90 in. x 50 in. x 17 ft.

o 50 fb. x 50 fb. x 57 fb.
10-in. Shaper.
2-Spindle Edging Machine.
Bolt Cutter, to take sizes to 15 inch. Merriman.
Lincoln Pattern No. 2 Miliers.

Ali kinds Machinists' Tools and Supplies.

NEW YORK AGENCY OF
THE TANITE CO., GRANT & BOGERT MACHINE TOOL WORKS, and for the NEW POLISHED SHAFTING.

H. PRENTISS & CO., 42 Dey St., N.Y.

## For Sale.

The Industrial Works of Shamokin, owned and successfully carried on for a number of years by the late Wm. Brown, deceased, consisting of Foundry and Machine Shop, and a large stock of Patterns regarded as part of the property. Boiler Shop, Blacksmith Shep and Factory for the manufacture of heavy coal screens. Well located in the borough of Shamokin, Pa., with the best facilities for shipping by rail, and surrounded by a district contributing all the work that a shop of that kind can possibly turn out. Easy terms of payment are offered to suit a purchaser of limited capital For list of Tools and further particulars apply to WM. McILVAIN & SONS.

Manufacturers of Boiler Plate and Tank Iron, Reading, Pa.

## For Sale.

TWO SUGAR PACKERS. ONE MIXER. ONE VACUUM PUMP. All in good condition. GEORGE B. GRAHAM. P. O. Box 689, Baltimore, Md.

# Wanted.

A Partner with \$5000 to \$10,000 in a Foundry and Machine Business, established in 1824. For par dculars, inquire of

I. H. COLLER, Poughkeepsie, N. Y.

# AN ENGLISHMAN,

Recently arrived, desires employment of any kind. Satisfactory references. Well acquainted

GEORGE JAMES. Office of The Iron Age, 83 Reade St., New York.

# Hardware.

An excellent opportunity to engage in the whole-sale trade for one who can command \$25,000, or would like to join hands with a good live concern in the South or Northwest, and put in as capital the stock, which is in excellent condition and well

Address "C. W. C.,"
Office of *The Iron Age*, 36 and 38 Clark St., Chicago, H A RARE OPPORTUNITY

for a man who can command \$3000 or \$4000, in a retail Hardware, Stove and Tinware business. Stock is being turned from three to four times per year; small competition. The town is situated in "Genesee Valley." N. Y.; inbabitants, about \$500. Splendid Railroad facilities. The business reputation of this town is unquestionable. Must quit business on account of health.

Address.

Office of The Iron Age, \$3 Reade St., New York. CHAS. O. LE COUNT,

29 Chambers St., New York PURCHASER OF HARDWARE (Twenty Years' Experies CORRESPONDENCE SOLICITED.

Refers by permission to

# Messrs. SARGENT & CO., New York. WIEBUSH & HILGER HARDWARE CO., New York. Messrs. J. S. BROWN & CO., Galveston, Texas. Metal Exchange Memberships

Bought and Sold by
WM. WILLIS MERRILL,
4 Stone Street, Room 69. Dealer in

EXCHANGE MEMBERSHIPS. **Estimates Furnished** 

and contracts taken for power shears, power punches, steam hammers, steam riveters, plate planers, accumulators cranes, hydraulic presses &c., upon the most favoraple terms to consumers Work guaranteed. B. GRAVES LOUDEN.

## 22d St. and Washington Ave., Philadelphia. Hydraulic Presses

FROM 50 TO 2000 TONS PRESSURE. Special Hydraulic Machinery Constructed.

B. GRAVES LOUDEN, Twenty-second st. and Washington ave., Philadelphia

SITUATION WANTED.—To Superintend an Iron or firass Manufac.ory. Am a Machinist by trade, and have a good experience in both branches in the management of shops and hands, and familiar with Machinery and Kerosene and Brass Work generally.

Address W. Q. LINCOLN.

BOX 292, Fairhaven, Mass.

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## Special Notices.

Bargains in New and Second-hand Machinery.

Sargains in New and Second-hand Machinery.

Sorliss Beam Condensing Engine, 30 in. x 72 in. Rorisontal Corliss Engine, 14 in. x 30 in. New. Horisontal Corliss Engine, 14 in. x 30 in. New. Horisontal Corliss Engine, 12 in. x 30 in. New. Horisontal Engine, 12 in. x 16 in. New. Horisontal Engine, 12 in. x 24 in. Horisontal Engine, 12 in. x 24 in. Horisontal Engine, 11 in. x 24 in. Horisontal Engine, 11 in. x 24 in. Horisontal Engine, 11 in. x 24 in. Horisontal Engine, 6 in. x 16 in. New. Horisontal Engine, 6 in. x 16 in. New. Horisontal Engine, 8 in. x 17 in. Ames. 10 H.P. N. Y. Sately Holiston Engine and Boiler. Copeland & Health Holiston Engine and Boiler. Horisonal Engine, 5 in. x 17 in. Engine and Boiler. Horisonal Engine, 5 in. x 17 in. Engine and Boiler. Horisonal Engine, 5 in. x 17 in. Engine Engine and Boiler, 10 in. Y. Sately Horisonal Engine, 5 in. x 17 in. Engine Engine Engine, 5 in. x 18 in. Y. Sately Horisonal Engine, 5 in. x 19 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine Engine Lathe, 18 in. x 26 in. Sately Horisonal Engine En

## For Sale. ENCINES AND BOILERS. Two Wright Automatic Cut-off Engines, 22 x 42

Two Dexter Automatic, 40 and 150 H. P. One 16 x 36 Slide-Valve Engine.

One 20 X 36 One to X 24 One Corliss Condensing Beam Engine, 500 H. P. Two Horizontal Tubular Boilers, 4 ft. x 16 ft. Vertical Tubular Boiler, 9 H. P.

All the above guaranteed in good working

NEWELL UNIVERSAL MILL CO., to Barclay Street, New York.

## For Sale.

4, 6, 8, 10, 20, 40, 60 and 100 H.-P. ENGINES. All classes and styles. Portables, BOILERS, PUMPS, &c. The BEST Screw-Cutting ENGINE LATHES, to ib. to 36 in. swing. Fine new PLANEIRS, DRILL, PRESSES, SHAPERS, and other Machine Tools. BOLT CUTTERS, NUT TAPPERS, HEADING MACHINE'S and PUNCH PRESSES, &c. Quality and prices unsurpassed.

B. M. YORK, Cleveland, Ohio.

# For Sale.

A large stock of Fine Steel Mattocks, with Handles, at \$7.50 per dozen; Steel R. R. Picks, \$5.75 per dozen ; Handled Axes, \$7.∞ per dozen. A. W. WHEELER,

## 141 Lake Street, Chicago, Ill. STEAM PUMPS

# For Sale.

A large number of Steam Pumps of all makes, and ranging in size from small tank or boiler feeds up to very heavy service machines.

While the stock lasts good bargains are open for Miners, Water Works, Rolling Mills, Furnaces, or any one needing to move fluids by steam.

Call upon or address.

LING A. HINGKLEY.

Call upon or address
JNO. A. HINCKLEY,
Purchasing Agent of the United Pipe Lines,
Oil City, Pa.

# For Sale.

The largest stock of New and Second-hand Engines, Boilers, and general Machinery in the West. Send for Catalogue. Hoisting Outfits for Coa-Mining and other purposes a specialty.

WARREN SPRINGER, 195 to 219 South Canal St., Chicago.

# For Sale.

Second-hand

# DROPS and LIFTERS.

BEECHER & PECK Lock Box 192, New Haven, Conn.

## For Sale. MACHINES

Making Picks, Mattocks, Axes, Solid Steel Hammers and Sledges, with Adze Eyes or Solid-Punched Eyes. T. & CO., Box 25,

Office of The Iron Age, 83 Reade St., New York. MANUFACTURERS CATALOGUES

Respectfully Solicited by MORRISON & PACKWOOD,

DEALERS II Agr'l Implements, Hardware, &c., TAMPA, FLORIDA.

## Hardware Manufacturers and Capitalists.

The undersigned is prepared to enter into con-ract for furnishing Tack Machinery complete, to qual the best, or to sell the right to make the machinery. I am, I believe, the only person in he country who is able or willing to make such proposition. Address WM. BOULDIN, Jr., Frederick, Md.

# Traveling Salesman.

Wanted, a Traveling Salesman acquainted with he Hardware and Machinery Trades te age, experience and salary expected.

Address "TRAVELING SALESMAN," Box 11, Office; of The Iron Age, 83 Rende St., New York. Trade Report. BRITISH IRON AND METAL

MARKETS. [Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, Feb. 13, 1884. Scotch Pig.-The market is steady, and quotations, with the exception of a few kinds, are unchanged. We quote makers' prices

as follows : Coltness, alongside, Glasgow. Langloan, Gartsherrie, Summerlee, Carnbroe, Glengarnock, "Ardrossan.... Eglinton,
Dalmellington, " at Leith... Eglinton, 47/ Lighterage from Ardrossan to Glasgow is 1/ W

Cleveland Pig-Is a little weaker. We quote as follows, f.o.b. shipping ports: Bessemer Pig.-The market is a little

firmer. W. C. Hematites are quoted 47/6@ 48/ for mixed lots, Nos. 1, 2 and 3, equal parts, f.o.b. shipping ports.

Manufactured Iron - Continues irregular. We quote at works :

Hoops, 20 W. G. and over. 

Steel Rails-Are a little steadier. We quote: Ordinary Sections, £4. 15/@ £5, f.o.b. shipping ports.

Old Rails-Are a little steadier, and D. H.'s, for prompt shipment, New York souri Pacific, 931/2; Pacific Mail, 471/4. delivery. We quote Old D. H.'s, £3. 7/6 @ £3. 10/, c.i.f. New York.

Scrap,-The market is irregular. We quote Heavy Wrought, c.i.f. New York, £2. 17/6 @ £3. Bessemer Crop Ends, run of mill, are quoted 60/, f.o.b. shipping ports.

Copper-Is a little firmer. Best Selected is quoted £62. 10/ @ £63. 10, and Chili Bars, £56 @ £56. 10/.

Tin.—The market is steadier. We quote Tennessee Compromise at 45. Straits Ingots, spot, £82. 10/ @ £83. 5/, and

futures, £83. 5/ @ £83. 15/. Tin Plates-Are weaker. We quote : Tin Plates, 10 x 14, 1st qual. Charcoal ... 19/6 @ 21/6 @ 19/1 ... 18/6 @ 19/1 ... 18/6 @ 19/1 ... 18/6 @ 18/1 ... 18/6 @ 18/1 ... 18/1 @ 18/1 ... 18/1 @ 18/1 ... 18/1 @ 18/1 ... 18/1 @ 18/1 ... 18/1 @ 18/1 @ 18/1 ... 18/1 @ 18/1 ... 18/1 @ 18/1 ... 18/1 @ 18/1 ...

Spelter.-The market is quiet. We quote Ordinary, at shipping ports, £14. 10 @

£14. 15/ Lead-Is steady. We quote Common English Pig, £12 @ £12. 5/.

Freights.-Steam from Glasgow to New York, 4/6@5/; Liverpool to New York, 4/ Liverpool to Philadelphia, 5/ @ 6/6, and London to New York, 7/6 @ 9/6.

# TRADE AND FINANCE.

Office of The Iron Age, WEDNESDAY EVENING, Feb. 18, 1884.

Within the past week several new elements have entered into the business situation. Disastrous floods in several parts of the country are a serious source of disturbance, traffic being interrupted, and in some instances important industries are suspended by the stoppage of machinery, as at Pittsburgh, Cincinnati and Wheeling. Another adverse influence is the further rise of foreign exchange to within a fraction of the shipping point. While some have attributed this movement to artificial influences-i. e., "bulling exchange" for the purpose of de-preciating values in Wall street, in order to cover short contracts—it is notorious that commercial bills are scarce, in the absence of an export demand for our leading staples. On Thursday the Bank of England advanced its rate from 3 to 31/2 % to protect itself from the drain to Australia, which until now was a chief source of supply, and now that a costly military campaign in Soudan is impending, taxing still further the Imperial Treasury, it becomes more probable that rates may strengthen. During the week speculation has been active, without reference to prices in Europe, and wheat, corn and provisions have all advanced. In consequence exporters are quiet, apparently content to wait until the present "bulge" has subsided. Meanwhile the markets ostensibly are being worked simply on considerations of supply and cost. Among favorable indications labor difficulties are being adjusted. An agreement has been reached among the trunk railway managers, and business failures are of less frequent occurrence, the number reported for the past week being 257, or 108 less than the week before, and less than during any week since the beginning of the of his life, will be received with regret, an indefinite time to come. year. It is also observed with satisfaction and to the older merchants will recall that real estate in New York City is active, the conveyances recorded in January being excess of \$3,000,000 compared with January, not impaired.

an increase of \$1,796,025 in surplus reserve, 700. The posted rates of sterling exchange remark that we could well spare \$5,000,000 or \$10,000,000 of gold, with advantage to this country in the reflex action. The folshipping United States double eagles and gold bars :

.8500,000 714 80— 1,869 Cartage and cooperage...

....\$501,369 at 76/31/2 P ounce, netting £102,478. 13/, \$4.89 28 for sight drafts. But there should be added to days' interest at 31/2 % and commissions, which together bring the cost up to within a fraction of \$4.90. Money loans nominally at 2 % on call. We quote 60 to 90 days' indorsed bills receivable 41/2 % @

5%; four months' acceptance, 5% @ 51/2%. On the Stock Exchange during the week the market has been irregular but generally strong. Prices of the trunk-line stocks advanced in response to an agreement among the managers to maintain schedule rates. It was generally understood that Gould and Vanderbilt, acting in harmony, had succeeded in forcing a rise, despite the news of disastrous floods. On Monday the increasing firmness of foreign exchange and probability of gold exports at no distant day had a depressing effect. On Tuesday the list was fractionally lower nearly all through, but the decline was strongly resisted. To-day there was a small advance in most of the active stocks. Toward the close Lackawanna sold at 12534; Northwestern, 12234; Lake Shore, 162%; Oregon and Transcontinental, Old Rails—Are a little steadier, and 211/4; St. Paul, 93/4; Northern Pacific preinquiries are in the market for lots Old ferred, 471/4; Union Pacific, 801/4; Mis-

> Government bonds were firm, and higher for the 3's, closing as follows:

U. S. 8 per cents		11434
U. S. 414s, 1801, coupon		
U. S. 4s, 1907, coupon		1237/6
U. S. Currency 6s, 1895		-
U. S. Currency 6s, 1896		-
U. S. Currency 6s, 1897		-
U. S. Currency 6s, 1898	18514	-
U. S. Currency 6s, 1899	18714	-

State bonds were strong, with sales of

The imports of foreign merchandise at this port the past week were rather below the usual average, the total being \$7,460,042, including \$1,911,340 in dry goods. There were full receipts of india rubber, tobacco and coffee, but the imports of the other leading items were light. Since January 1, the imports aggregate \$50,074,393, compared with \$54,078,519 for the corresponding period of 1883. The importations of specie for the week amounted to \$170,039, mostly in silver, making a total since January 1 of \$720,532, and the exports of specie were \$219,500, mostly in silver, making a total of nearly \$2,000,000 since January 1. The exports of domestic produce from this port during the past week were quite moderate, the total being \$5,773,340, compared with \$6,157,092 for the same week last year. Since January I the exports aggregate \$36,846,666, compared with \$42,205,023 for the corres-

ponding period of 1883. In the general markets, outside of specu lative circles, business is unseasonably dull, although, as a rule, prices are well maintained. In dry goods the condition of the market has decidedly improved within the ast three weeks, but the demand floods and difficulty in transportation.

# GENERAL HARDWARE.

The Western floods, and the dark, depress ing weather which has prevailed in this city and widely through the country, have had their influence in checking the increase of trade. There is, however, in most staple lines an improvement to be noted, and a good many goods are being sold. The reports of travelers as to the condition and the only benefit that they have from the low feeling of the trade they visit are for the most part satisfactory, and there are expectations of a fair season's business. Prices are steady, and in most lines a conservative feeling prevails that they are not to be sacrificed to force sales. Some manufacturers report their orders as exceptionally good. The financial conditions remain sound and collections are reported satisfactory.

HERMANN BOKER.

United States to whom the name of Her- the only prospect they can see of obtaining the usual terms and discounts. This is re-Hardware, of which he was the founder. to restrict production to the demands of The announcement of his death on the 8th inst. at the age of 81 years, in Bonn, Germany, where he spent the last 20 years as so great that they look for low prices for three weeks, the advance will be main-Mr. Boker was the son of a successful

\$6,419,700 at the same time last year, and No. 63 Liberty street, in this city. Mr. \$4,051,175 at the corresponding date in 1881. Boker was the pioneer of the trade in imafter his arrival in this country he had been \$4.90. at which they still remain. The rate America, and his wife also joined him here. is about 1/4 within the gold-exporting The business house was moved to No. 80 until the present building was constructed in Duane street. In 1842 Mr. Boker's nephew, Hermann Funke, the present head of the so prosperous that Mr. Boker returned to Germany 10 years later, where his sons were educated. In 1863 he retired from business, leaving his interest to his son, Ferdinand A. Boker.

At the time when the house of Hermann Boker & Co. was established, we need This weighs about 26,865 ounces, is sold scarcely remind our readers that the business was very different in its character from what it is at present, the trade of New York being then undeveloped and exceedingly limited in comparison with the magnitude to which it has since grown, and the Hardware business having undergone since that period many modifications. The market was then supplied almost exclusively with English Hardware, and to Mr. Boker belongs the credit of having commenced on an extensive scale, the importation of the German goods. The house during its early years was not engaged, as of late, exclusively with Hardware and what are now considered kindred lines, for at the commencement of their business, it being prior to the development and subdivision of the trade into separate and distinct departments, they dealt not only in Hardware and Cutlery, but were agents for silk and woolen houses, and large importers of Toys, Slates, Pencils, Whalers' Articles, Accordeons and miscellaneous goods, besides articles that were intended for slave traders to be used in African traffic. Some of our readers will remember that goods to St. Louis, Pittsburgh or Wheeling were in those days shipped by sail via New Or-leans to their destination. Those whose recollections go back so far will recall Mr. Boker as a thorough and successful merchant, devoting himself from 7 o'clock in the morning diligently and enthusiastically to his business, and those who knew him well will remember his affability, courtesy and kindness, and the hearty, genial disposition which made him so widely known and secured to him so many friends. Mr. Boker, during his residence here, was prominent among German citizens He organized a German society in 1840 called the Volksfreund, which has since gone out of existence. He was a Mason and a member of Pythagoras Lodge No. 1. He was also a director in the Mercantile Mutual Insurance Company, and held responsible positions in other corporations. His death was due to old age, and Mr. Ferdinand Boker, who has just returned from a visit to his parents at Bonn, says that his father was in good health when he left him. Mr. Boker leaves a widow, five sons and one daughter. Henry Boker, the eldest son, is at present with his mother and sister in Bonn, and two other sons, Ferdinand and Charles, are in business in this SCREWS.

There has been no material change in the Screw market since our last report. Several manufacturers, among whom may be mentioned the Dayton Screw Company and the Philadelphia Screw Company, have advanced their quotations to discount 70 per cent., but the Union Steel Screw Company. of Cleveland, quote as follows:

Flat-Head Steel, Flat-Head Brass.

The Russell & Erwin Manufacturing Cominterior points is temporarily checked by pany are still quoting as per their last circular, which we published.

There is general agreement among the Screw manufacturers that the low prices which have prevailed are unremunerative, and the American Screw Company consider them unnecessary and injurious, as having induced speculative orders which have generally exhausted stocks and covered the production for some time to come. They mention that their own stock was unusually small at the beginning of the year, and that prices is that of giving employment to their idle machinery. In their view, however, the same end might have been attained without the sacrifice of profit. They anticipate that the goods that it will be impossible for makers to obtain remunerative rates, and they can see no immediate prospect of prices being advanced beyond those of their circular of the 4th inst. In their judgment there is duced the card from the \$3.40 rate, where it There are not many Hardware men in the too much Screw machinery in operation, and has stood for nearly two years, to \$2.60, with mann Boker is not familiar, as borne by a fair prices for Screws will be when there is garded as virtually an advance of 10 cents, house prominent as importers and dealers in a general movement on the part of makers consumption. The difficulties, however, in the way of bringing this about they regard

A representative of another Screw comsome of their early business associations. pany, speaking with reference to the general situation, has expressed the view that during The bank statement for the week shows business with his father. He was married prices. But notwithstanding this large of trade, which is expected to improve when continued accumulation at this center, with in 1835, and two years later he came to this amount of idle machinery he mentions that

country, where he established himself in the new machinery has been built and set in opwhich now stands at \$21,094,400, against business of importing German Hardware at eration by new manufacturers, and to a consequent overproduction he ascribes the recent break in prices to a point, as he terms The loans show a gain this week of \$3,074,- ported German Hardware, and three years it, below the cost of production. This condition of things he considers likely to conwere advanced on Monday to \$4.861/2 @ so successful that his brother Albert came to tinue until manufacturers have lost money enough to satisfy them to limit their production to the consumption of the country: but point, but, as yet, no engagements for shipping have been made. Wall-street bankers John street, and afterward to No. 50 Cliff several years of heavy loss will, he thinks, be street, where the firm remained for 23 years, needed to teach all of them this lesson.

The following views, which are expressed by a member of a large Hardware house who is thoroughly informed with reference lowing is a close calculation of the cost of firm, joined him in the business, which was to the Screw business, will be of interest to our readers :

Important changes have taken place within a few years in the business of making and selling Screws. Not long ago it was a comfortable monopoly, but the tide turned, and the monopoly has diminished into a singularly active competition. As this situation became more and ware. tion became more and more apparent, the older manufacturers desired an association older manufacturers desired an association of Screw makers. A temporary one was made, and during its continuance a permanent organization was considered. At the meetings held for this purpose two parties were developed upon the question of apportionment of production. One party, ed by the older makers, demanded based upon producing capacity, including both active and idle machinery. Their adversaries insisted that the only proper basis was the actual living business—the manufactures and sales—of the several mem-bers. This was the rock upon which the association split, and prices were wrecked

The withdrawal of the American Company from the association, announced a few weeks ago by *The Iron Age*, has been followed by a rapid decline in prices, the present condition of which is familiar to the whole trade. Purchasers have naturally would the present state of whole trade. Purchasers have naturally availed themselves of the present state of the market, and are very generally supplied There is, therefore, at present no demand to justify even a modest advance.

As to the prospect for the future little can be predicted. Much will depend upon the disposition of the old manufacturers who made and unmade the association, and it is difficult to see how, in justice to the interests of their stockholders, they can allow the present ruinous condition of things to exist. The Screw business is no longer their monopoly, and it never again can be. They are learning this lesson from current events and paying as they go for their tuition. If they make good use of what they learn, an asso-ciation of Screw manufacturers is not unlikely—possibly within a year, perhaps not for two years or more—with an adjustment of the product upon a reasonable and satisfactory basis, and prices which will return a fair profit. A restoration of the old prices is not to be looked for soon, if ever. A slight advance is not improbable when stocks, replenished at present prices, become depleted, associa-tion or no association. But until some un-derstanding among the manufacturers is reached and respected there is nothing to prevent the market from being variable and unsatisfactory to manufacturers, merchants and consumers.

Trade continues in about the same condition as that reported last week. The demand is very fair for the season, some dealers finding it unusually active. The supply of Nails holds out very satisfactorily, notwithstanding the continuance of the New England strike, which shows no signs of an early settlement. An indication of the earnestness displayed in the support of their cause by the strikers is seen in an account which has been received of a meeting on the 5th inst., at Plymouth, Mass., of delegates from the different local factories to draw up a new constitution and by-laws for a nailers' union. A convention of nailers is to be held at Mid-dlesboro', Mass., later in the month. It is stated that there are prospects of labor troubles at factories in Eastern Pennsylvania, which may interfere with production there. The nearer the 1st of March approaches, with the present moderate stocks of Nails, the more confident do dealers feel in the maintenance of prices at present rates. We quote: \$2.60 to the trade, with \$2.50 as the minimum price for very large lots, and \$2.65 and upward for small lots. Advices from the West have been received to the effect that floods have damaged the Nail factories at Pittsburgh, Wheeling and elsewhere along the Ohio River to such an extent that immediate general resumption of work is not possible, although last Monday was the day fixed for the termination of the shut-down by Western machines. Stocks of Nails have also been seriously damaged in the factory warehouses. The meeting of the Western Nail Association at Pittsburgh, on Thursday last, was so poorly attended on account of the flood that no action was taken on the market will soon be so full of low-priced proposed closing of Western factories for two more weeks.

The Western Nail Association, at its monthly meeting held in Pittsburgh to-day, as we are advised by a special dispatch, reand the expectation is entertained that in the present condition of the mills, many of them having been flooded, and not being in condition to resume work for from two to tained.

BARB WIRE.

The demand is not large, though some establishments report a fair volume of busifor \$14,000,000 and upward, which is an Hardware manufacturer of Remscheid, the past three years the members of the late ness, and one company have booked more Germany, where he was educated. He Screw Association ran less than half their orders in the past week than their current 1883, showing that confidence in values is served an apprenticeship in Hardware machinery, the consumption of the country output amounted to. The unfavorable in Königsberg, after which he went into being fully supplied and at remunerative weather is charged with the backwardness Sprinklers.—Plain—Pieced.

\$8.10 9.85 11.60 13.65

.\$3,40

be prosecuted with comfort. Prices range 133 00890, Com. Stem, Brass Whet about the same as before, but we quote on a basis of 5 ¼ cents per pound at New York 186 033, Common Stem, basis of 5% cents per pound at New York for large lots of Four-point Galvanized Barb Wire, with 1/4 cent to 3/4 cent additional for small quantities.

The Hawkeye Steel Barb Fence Company, of Burlington, Iowa, offer for sale the Hawkeye Barb-Wire Lifter and Carrier. It consists of two iron handles hinged together, having dogs projecting at right ject to a discount of 40 per cent. angles from the handles. To use the Lifter, the dogs are inserted in the central aperture of a Barb-Wire Reel. When the handles are lifted the dogs spread out and fasten themselves, enabling the spool of Wire to be carried easily and safely, avoiding the cutting of hands and the tearing of clothing. For an illustration of this Lifter, see advertisement on page 3.

## CARRIAGE HARDWARE

The trade in Carriage Hardware was not generally satisfactory during the closing months of last year, some houses reporting it duller than it has been since 1876. The natural consequence was that prices suffered an average decline of 121/2 to 15 per cent. not more than half of which was justified by the diminution in cost of metal and manufacturing. Since the 1st of January there has, however, been a material improvement, and though there is a disposition on the part of bayers to be cautious and order in small lots, a business fully up to the average has been done thus far this year. Reports are to the effect that the trade in Carriage Goods is still improving, and a good many small and medium-sized orders coming in. Collections are mentioned as being very satisfactory, and the outlook promises a fair trade at close prices. With the new factories that have recently begun the manufacture of Carriage Hardware-the production, if not in excess of demand, being certainly very close up to it-the market is in such a condition that it is not likely that the manufacturers' profits will be large for the coming season, but with a fair demand it is anticipated that a healthy business will be transacted. One manufacturer writes that the trade seem to be taking a very conservative course, and while they do not look for a big thing, they expect to do a fairly remunerative business.

## MISCELLANEOUS PRICES.

In addition to the discount of 17 1/2 per cent. which the Oliver Ames & Sons Corporation make from the list prices, they allow a further discount of 73/2 per cent on the following numbers:

Solid Steel, Nos. 838 to 879, pages 1614 to 1616.
Steel Back Strap, Nos. 548 to 885, pages 22 and 23.
Iron Back Strap, Nos. 586 to 702, pages 21 to 27.
Steel and Iron Scoops, Nos. 780 to 786, pages 28 and 29.
Steel and Iron Scoops, Nos. 792 to 801, page 30.
Steel Shovels, Nos. 818 to 816, page 31.

They will also allow an extra discount of to per cent. to all parties whose net purchases from them exceed \$500 in six months

The Payson Manufacturing Company, of Chicago, have issued, under date of February 10, a revised list of their Anti-friction

# CASTERS,

which we publish below. Their New York office, H. J. Brainerd, Agent, has been removed from 110 Pearl street to 125 Cham-

off	fice, H. J. Brainerd, Agent, has been re	Per doz \$4.80 5.60 6.65 8.4
me	oved from 110 Pearl street to 125 Chan	Coffee Boilers.—Pieced—Copper Bottom.
be	rs street, where a stock of their goods wi	II Nos 6 7 8 9
he	carried. The new list, which is subject	Nos
	a discount of 50 per cent., 30 days, or	Bailed Coffee-Pots.—Pieced.
	r cent. for cash in 10 days, is as follows :	"  Quarte 2 0 t 0 6
		Per dom \$5.10 5.70 6.00 7.75 9.10
Nu	imber.	Lipped Coffee-Pots.—Pieced.
Slin	e. Style. 11/4 Inch Wheel. Per set	Quarts 1 116 2 8 4 5 6 Per dos \$3.85 4.20 4.35 4.90 5.25 7.15 8.46
182		
182	26, "Lignum Vitæ Wheel	6 Sond-Lip Conee-Pous.—Pieced.
182	98 H Brane Whool 10	0 Quarts 2 8 4 5 8 8 0 Per doz \$7.35 8.45 9.00 10.80 12.05 13.82
182	28, Brass Wheel	Franch Coffee Pote Pierrel
182		
185	as, brass wheel 1.0	Quarts 1 134 2 8 4 5 Per dog \$8.20 9.40 10.50 11.70 18.95 19.20
	1%-Inch Wheel.	Dish Pans Pleased
183	33, Common Stem, Iron Wheel	
188 188	81, " Lig'm Vitæ Wheel .8	Non don
188		Milk Pans.—Pieced.
183	37. Oblong Plate, Iron Wheel	Quarts 1 2 8 4 8 8 10
188	38, " Lignum Vitæ Wheel .8	Per dox \$1.65 2.40 2.85 8.95 4.80 5.10 8.00
183	39, Brass Wheel 1.2 40, Triangular Plate, Iron Wheel 8	
188	41, Lig. Vitæ Whoel 84, Round Plate, Iron Wheel 848, Lignum Vitæ Wheel 848,	Wire Bottom, per dos \$2.60
188	42, Round Plate, Iron Wheel	Wash Basins.—Pieced.
183		Common, Round, per dos \$3.65
	196-Inch Wheel.	Wash Dasing Discord
184	29, Bedstead Stem, Iron Wheel \$0.90	
184	3), "Lig. Vitæ Wheel 90 31, "Porcelain " 90	With handles, per doz \$4.30
184	31, " Porcelain " 90	manager ought a model
184	32, Brass Wheel 1.50 33, Common Stem, Iron Wheel 90	Pints 34 1 Quarts 1 2 Per gross \$7.50 9.85 17.60 27.80
184	84, " Lig. Vitæ Wheel 90 85, " Brass Wheel 1.50	Oil Cans.—Pieced.
184	87 Oblony Plate Iron Wheel 1.50	
184	37, Oblong Plate, Iron Wheel	Gallons
184	89, " Brass Wheel 1.50	Dowdon Cane Discard
184	40, Triangular Plate, Iron " 90	Gallons
184	41, " Lig. Vitte Wheel90	Per doz
***	2-Inch Wheel.	Lard Stands Pieced.
186	33, Common Stem, Iron Wheel	Gallons
186	86. " Brass Wheel 2 00	Per dos \$10.15 13,10 17.45 20.65
186	29, bedstead Stem, Iron 1.15	Dinner Buckets.—Pieced.
186 186	30, " Lig. Vitæ Wheel 1.15	Quarts
186	32, "Brass Wheel 2.00 37, Oblong Plate, Iron "1.15	Per doz
186	88. " Lig. Vitae Wheel. 1.15	
186	39, " Brass Wheel 2.00	Pints
186	29 and No. 175, Fiat Bed Brackets 1.90	Fluted Tea-Pots.—Pieced,
186	80 " 178, " 2.00 29 " 176, Corner Bed Brackets. 1.90	
156	30 " 176. " 2.00	Pints 2 3 4 5 6 Per dog \$9.35 9.85 10.90 18.65 14.70
	Polished Brass Casters.	Oval Tea-Pots.—Pieced.
	1-Inch Wheel.	Pints
191	Ost Bladle Cham Dean Will . 1	Per dog
181	045, Phila. Stem, Brass Wheel \$1.80 0045. " with ring 2.00	Sauce Pans.—Pieced—Tin Bottoms.
181	0450, " Hard Rub, Wheel., 2.00	Quarts 116 0 9 4 e
181 (	00450, " " " with	Quarts     116     8     8     4     6       Per doz     82.85     3.85     5.60     5.95     6.45
181	Ring 2.25	Marking Pots.—Stamped.
181	048, Deep Socket, Brass Wheel 2.25 0480, Hard Rub. Wheel 2.50	
		Per dos
	Polished Brass Casters.	
182 182	045, Phila. Stem, Brass Wheel \$2.50	Quarts 6 8 10 12 Per doz 86.80 7.70 8.55 10.50
	0450. " Hard Rub Wheel 2.75	Per doz
	0450. " " " " " " writh	Milk Buckets.—Pieced.
100		Quarts
182	025, Screw Stem, Brass Wheel 2.75 0025, "with ring 3.00	Dish Kettles.—Pieced.
182	0025, with ring 3.00 0250, Hard Rub. Wheel. 3.00 0250	Oudete 6 8 10 10
199 /	0250, " with	Quarts
182	Ring 8.25	Covered Buckets.—Pieced.—Straight.
182 (	048, Deep Socket, Brass Wheel 8.00	
168	Ring   8.25     048, Deep Socket, Brass Wheel   8.00     980,	Quarts
E-0 6	M199 11 11 11 11 11 11 11 11 11 11 11 11	

" Hard Rub. Wheel .... 3.75 Per doz

	Т	HEIRON
	133 00390, Com. Stem, Brass Wheel with	Lamp Fillers.—Piece
9	Pine 4.00	Dinte
	184 039, Bedstead Stem, Brass Wheel 5.00 186 033, Common Stem, " 7.50	KOL GOW
1	Soft Rubber Wheels furnished to order.	Sprinklers.—Plain—Pier
1	Japanned Truck Casters   Number of Caster   188   190   192   195   Diameter of Wheel   2½ in   3½ in   4 in   6 in   Price   \$2.00   2.50   10.00   25.00	Quarts
	Number of Caster 188 190 192 195 Diameter of Wheel. 236 in. 316 in. 4 in. 6 in.	Candle Molds.—Piece
,	Price \$2.00 2.50 10.00 25.00	Holes
1	The New Champion Force Pump, of which	Sheet Graters.—Piece
-	an advertisement will be found on page 26,	Sheet
	is sold from the following list, which is sub-	Measures,—Pieced—Ti
,	ject to a discount of 40 per cent. to the general trade:	Pints
	Shallow Well Pumps.	Funnels.—Pieced.
	8-inch Brass Cylinders, 6-inch stroke.	Pints 1/4 1   Quarts
	No. 1, 514 feet below platform, fitted for 1-inch suction pipe\$14.75	Pints 1/6 1 Quarts Per doz \$1.05 1.25 Per doz
	No. 5, 8 feet below platform, fitted for 1-inch	Oilers.—Pieced.
	suction pipe. 15.75 No. 6, 10 feet below platform, fitted for 1-inch	Pints Straight Spouts, per doz Bent Spouts, per doz
	suction pipe 16.75	Bent Spouts, per doz
	10. 20, 10.00	Pie-Nic Mugs.—Pieced
1		Discount sheet No. 22 has be
	Shallow Well Pumps.  3 %-inch Brass Cylinders, 6-inch stroke.	P. Lowentraut, Newark, N. J.
	No. 2, 516 feet below platform, fitted for 114-	prices on the Tools and Hardwa
	inch pipe. 15.50 No. 3, 8 feet below platform, fitted for 1¼-	which he is manufacturer. For
	inch pipe. 16.50 No. 4, 10 feet below platform, fitted for 134-	ience of those consulting this di
	inch pipe	the lists, as well as the discount
	Divided Cylinder, Deep or Drilled Well Pumps,	and reference is made to the nu
1	Brass Cylinders, Bolted Iron Caps and Valve Seats.	cut in the catalogue which re
1	No. 7, 8-in, hore, adapted for 514-in drilled	article in question. The pamp
1	wells. 15.00  No. 8, 3%-in. bore, adapted for 6-in. drilled wells	scribes the Eureka Skate, of Lowentraut is the manufacture
1	wells	a cut of his Patent Self-Adjust
I	wells	SASH BALANCES.
1	Wells	The New Patent Sash Balance
I	Heavy Brass Cylinders, Inside Screwed Caps and Brass Valve Seats.	Locks made by Robert B. Hug
1	Brass Valve Seats.	ford, Conn., are sold from the
l	No. 17, 3-in. bore, for 31/4-in. drilled wells 20 00 No. 19, 21/4-in. bore, for 3-in. drilled wells 19.00	vised list, which is subject to a
ĺ	Proces Chilling to a control of the	33 1/3 per cent. :
I	No. 27, 8-in, hore, for 4-in, drilled wells 90 00	New (1883 and 1884 Patents) Malleal
ı	No. 27, 3-in. bore, for 4-in. drilled wells 20.00 No. 29, 21/6-in. bore, for 31/6-in. drilled wells 19.00	New (1883 and 1884 Patents) Malleal Locks and Engaging plates po New (1883 and 1884 Patents) Malleab
ı	New Champion winamia Pamps,	out Locks and Engaging Platespe
	10, 16,75	Improved Balances, Malleable (T) No. 1, Large, for 30-Pound Sash a
ı	21, 10, 15.00	der
١	" 36, " " 26, " " " 10.00 " 10.00 " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " " 10.00 " 10	No. 2, Medium, for 20-Pound Sash der
	57, " 7, " 16.00	derpe No. 8, Small, for 16-Pound Sash a derpe
	00, 17.001	derpe (Same, in Gray Iron, 15 per cent. a Sash Locks.
		Sash Locks.
	37, 17, 21.00 1 20.00	Malleable, having Engaging Plates included) for Sash hung with V
	47, 42, 43, 49, 44, 49, 44, 49, 44, 49, 44, 49, 44, 49, 44, 44	Bronzed Handlesper pair (1
1	Three-way cock and rod fitted 8.00	Plates (Screws included)per pair (1
,	Vertical Lever Pumps.	Sash Holder Locks Finished in Bronz out Engaging Platesper pair (1)
1	No. 11, 8%-inch brass cylinders	Malleable, having Engaging Plates included) for Saah hung with V Bronzed Handlesper pair (1 Malleable Real Bronze Handles, E. Plates (Screws included)per pair (3 Sash Holder Locks Finished in Bronz out Engaging Platesper pair (1 Locks, Handles and Engaging Plates (for Saah Weights), 50 per cent. extra
	The manufacturers, Clark Bros., Belmont,	The unimproved old 1877 styl
-	N. Y., advise us that the demand for this article has grown rapidly during the past	Balances Mr. Hugunin does no
	year, and the outlook promises well for the	commend, considering that the

very satisfactory of late.

is as follows:

Nos.... Per dos.

The Excelsior Manufacturing Company

612-618 North Main street, St. Louis, Mo.,

have issued a list of Plain Tinware, which is subject to a discount of 50 and 30 per

ticles are at higher list prices than the

manual list, many are much lower. The list

Price List of Plain Tinware

Wash Boilers.—Pieced—Copper Bottom.

Tea-Kettles.—Pieced—Copper Bottom.

Steamers.—Pieced.

Nos ...... 6 7 8 Per dos........ \$12.85 13.65 16.85

cent. It will be seen that, while some

Pipe Thread and Pipe Vise have also been in several styles, and are adapted for sashes hung with weights, being self-locking when the sashes are open and at intermediate points of opening up to 4 inches. The sashes are closed without handling the Locks, but not opened within the space of 4 inches without unlocking. The new Locks are malleable; the handles are finished with bronze or made of real bronze, as ordered. The construction of these goods will be better understood by reference to Mr. Hugunin's advertisement on another page. The following are at present the prices for

the Hardware specialties which are manu-9.00 10.80 12.05 13.35 factured by Arnold, Doane & Co., Norwalk, Conn. : 2 8 4 5 Giant Truck Caster.....net 10.50 11.70 18.35 19.20 Size of Wheel.... 2 in. 234 in. 3 in. 4 in. 454 in.

-Pieced.	Each
10 13 16 \$6.45 7.50 10.45 —Pieced.	Stationary Truck Caster, Heavy Pattern, dis. 35&103 3-inch Wheel, each
0 2.85 8.95 4.80 5.10 8.90 rs.—Pieced.	The Boss Anti-friction Hanger
s.—Pieced.	mon HangerPer pair, 1.25
	The Best Anti-friction Hanger dis. 50&10 % No. 1, corresponding to 3 in., 4 in., 5 in., Common Hanger
s.—Pieced.	No. 2, corresponding to 6 in., 8 in., 10 in. Common Hanger
Quarts 1 2 17.60 27.30 -Pieced.	The Improved Novelty Hangerdis. 50&10 \$\frac{1}{2}\$ Size of Wheel 4 in. 5 in. 6 in. 8 in. Per pair\$1.00 1.25 1.50 2.25
1/2 1 25	The Duplex Wood Track Hangerdis. 60 % No. 4, per doz. pairs\$14.00
	The Boss Barn-Door Roller dis. 10 s No. 1, per pair
	" 2, " 75¢ The Union Barn-Door Röller
4 6 8 10 310.15 18.10 17.45 90.65	8 45 48 48 41

NEW GOODS The Yale & Towne Manufacturing Com-\$6.70 7,80 pany have recently begun manufacturing "Hammered" Real Bronze Hardware, some 2 8 4 5 \$4.60 4.90 5.25 6.85 articles of which they have advertised in The Iron Age. They are now prepared, as shown in their pamphlet, which has just been issued, to furnish a full assortment of House Trimmings finished in this style, which is so 8 4 5 \$8,55 9,50 11.00 fashionable and popular at the present time.
All "Yale" and "Standard" Locks shown in their large catalogue hitherto made with ornamental Bronze Fronts and designated as Extra Full Bronze and Full Bronze, can now be furnished with "Hammered" fronts and trimmings. As they also make Real Bronze Shutter Butts, Shutter Flaps, Flush Bolts, Sash Fasteners, &c., of the same style and finish, a complete line of the "Hammered" Bronze may be adopted for the equipment of a house, thus obtaining a harmony of design throughout. The Locks which they specify

surfaces, prices of which are the same as for the "Hammered" ornamentation. The following are their new and revised lists for the goods which are mustrated in this part 15.85 phlet, H denoting the "Hammered" finish, the goods which are illustrated in this pam-

Butts.

Shutter Flaps.

Flush Bolts.

With Knob.—In Place of Slide.

Loose Joint Butts.-With Steel Bushings.

Sash Fasteners.

plete.......Per dozen, \$4.0
Adjustable Shutter Bars for Inside Shutters.

and Pearl streets, Cincinnati, Ohio, for

Packed with Bronze Screws, Complete.

H 51
H 52
H 54
134 x 134
134 x 29
pair.

\$0.00
1.00

H 154 H 155 H 156 2 x 114 214 x 2 3 x 214 \$1.25 1.75 2.25

Candle Molds.—Pieced.	and the list prices being subject to a discount
3 4 6 8 19 oz. Stands, \$3.65 5,25 7.45 9.70 19.70	of to mon comb.
Sheet Graters.—Pieced.	"HAMMERED" REAL BRONZE.
51.10 1.50 2.30	Door Pulls. Per doz.
Measures.—Pieced—Tin.	No. H 44, Packed with Bronze Screws, com- plete\$41.50
	No. H 46, Packed with Bronze Screws, complete, with Large Plate
Funnels.—Pieced.	Store Door Handles.
Og \$1.05 1,95   Per dog. \$1.75 2.30 8.50 Oilers.—Pieced.	Single Handles. Per set. No. H 571, With Plain Brass Front Lock \$7.25 No. H 573, " Brass Rabbeted Front Lock 9.75 No. H 672, " "Hammered" Bronze Front
ht Spouts, per doz. \$3.20 4.75 Spouts, per doz. 8.33 5.10	Took 7.9%
Pic-Nic Mugs.—Pieced.	Double Handles. No. H 581, With Plain Brass Front Lock 9.75 No. H 583, " Rabbeted Front
count sheet No. 22 has been issued by	Lock
owentraut, Newark, N. J., and gives	No. H 582, With "Hammered" Bronze Front Lock. 9.75
s on the Tools and Hardware articles of	No. H 584, With "Hammered" Bronze Rab-
h he is manufacturer. For the conven-	beted Front Lock
of those consulting this discount sheet,	Single Handles. No. H 371, With Plain Brass Front Lock 6.25

sts, as well as the discounts, are given.

sterence is made to the number of the at the catalogue which represents the Lock
O. H 374, With "Hammered" Bronze Rab-beted Front Lock
Doubled Handles. in question. The pamphlet also dethe Eureka Skate, of which Mr. No. H 381, With Plain Brass Front Lock....
No. H 388, " " Rabbeted Front Lock...
No. H 382, With "Hammered" Bronze Front straut is the manufacturer, and gives of his Patent Self-Adjusting Wrench. 10.75

SASH BALANCES. New Patent Sash Balances and Sash made by Robert B. Hugunin, Hartconn., are sold from the following reist, which is subject to a discount of er cent. :

883 and 1884 Patents) Malleable, with and Engaging plates . . . . . per set (4) \$1.25 83 and 1884 Patents) Malleable, with-ocks and Engaging Plates . per set (4) 1.00 oved Balances, Malleable (Three Sizes.) No. H 1820, Diameter, 1 inch..... Per dozen \$1.75 No. H 1821, " 1½ inch...." 2.00 No. H 1822, ', 1½ " ..." 2.25 Large, for 30-Pound Sash and un-per set (4) \$1.25 Medium, for 20-Pound Sash and un-Small, for 16-Pound Sash and un-For Inside Shutters, &c., Packed with Bronz Screws, Complete. 

e, in Gray Iron, 15 per cent. additional.) Sash Locks. le, having Engaging Plates (Screws ed) for Saah hung with Weights, ed Handles. ...per pair (I window) \$0.60 le Real Bronze Handles, Engaging (Screws Included). per pair (I window) .80 bider Locks Finished in Bronze, with

unimproved old 1877 style of Screw es Mr. Hugunin does not now reyear, and the outlook promises well for the commend, considering that the goods with coming season. The sales of their Ratchet the latest improvements are far preferable but if any parties desire to secure the old style he offers to furnish them at low figures The manufacturer states that the new Balances possess valuable advantages in their working and adjustments over any that he has heretofore made, as they are adjusted from underneath the sashes when the latter are fully raised, and are out of sight when the sashes are closed or open, the construction also allowing the roller free play to adjust itself squarely to its work if the sash or frame be out of square. The new Sash Locks (patented January 15, 1884) are made

Cupboard Turns. No. H 1088, 2 x 314 inch, with Bronze Screws, The pamphlet also illustrates their Screwless Door Knobs and Spindles, the advantages

> whom Bramhall & Spier, 128 Chamber street, are the representatives in this city, are introducing to manufacturers and the trade at large their new article made of Iridium, a metal which, owing to its high melting point and extreme hardness, it has been heretofore impossible to manipulate practically, except for the diamond points of gold pens, for which grains of suitable size were selected from the crude ore. In the year 1881, however, a process for melting Iridium was discovered by John Holland, of Cincinnati, who, as a leading manufacturer of Gold Pens, was led to experiment with this metal, and with the most satisfactory results. The American Iridium Company are working under patents which were obtained by Mr. Holland in this and many other countries, and are producing articles of Iridium which are especially adapted to many mechanical and other uses. The fact that this metal melts only under very great heat; that it takes a high polish which does not tarnish or oxidize in the air: that it does not dissolve in the strongest acids or alkalies, and that it is harder than tempered steel, agate or rock crystal,

of which are pointed out.

gold, silver, brass, copper, iron, steel and other metals, renders it valuable for many manufacturing purposes. This company refer to the following uses to which the metal can be put, and thus describe the various articles which they are prepared to furnish: Contact Points for Telegraph Instruments thoroughly tested and pronounced very sat stactory.

Bearings of Balances and Fine Scales.

Iridium is superior to agate or steel for this purpose, as it takes a fine edge, does not oxidize or corrode, and is harder than either Send for special circular. Jewels of Watches and Clocks.—Are supe-

rior to ruby in hardness and strength. Pallet Jewels may be soldered permanently into their places

Styluses. - Iridium pointed styluses are su perior to steel or agate, since they move freely and smoothly, do not corrode or oxidize and are light, strong and durable. See special circular.

Draw-plates of this metal are superior to steel or ruby in hardness and durability Capable of drawing with accuracy the finest wire. See circular.

Drawing and Ruling Pens with Iridium points are indestructible. Steel instruments electro-plated with Iridium will not tarnish

Blow-pipes with Iridium tips are almost indestructible; the size of the flame will remain uniform and they will not clog up by

6.25 corrosion. Any sized hole made to order.

Steam-Gauges.—The following extract
from the letter of R. C. Blake, superintendfrom the letter of R. C. Blake, superintend-ent Blake Steam Gauge Company, Hamil-ton, Ohio, under date of February 10, 1882. explains itself: "It may not be politic for me to declare my approbation of the Iridium as the only and best device I ever introduced to continue the life of my gauge, by over-coming absolutely the great wear from fric-tion of the results of severe the second which 9.75 6.25 8.50 Loor Knobs and Bell Pulls.

All of our Bronze Door Knobs, unless otherwise ordered, will be furnished with the "Screwless" Spindle.

No. H 5, 234 inches, Door Knob. Per pair \$4.00 No. H 6, 234 " " " " " 3.25 No. H 1050, 134" Bell Pull, to match Door Knobs. Each 2.75

Shutter Knobs.

No. H 1820, Diameter, 1 inch No. H 1831. metals by the common process known to all artisans—that of solder, either hard or soft. There is nothing now, that I can see, to prevent its adoption by me."

Copper Alloy, or Irido-Copper, for box metal and journal bearings. This metal is filled with minute pores which soak the oil and keep the bearing well lubricated. Send for grounds circular.

Silver Alloy or Irido-Silver.—This metal has a beautiful silver-white color and con-136 x 234 1.00 tains a small percentage of Iridium, which gives it great elasticity, thereby admitting of much reduction in weight in silverware.

It engraves as easily as sterling silver.

Platinum Alloy or Irido-Platinum.—The
Iridium stiffens, hardens and raises the fusing
point of platinum.

Jewelry.—Iridium has a handsome color, and is susceptible of a high polish which does not tarnish or scratch. It makes beau-tiful combinations with gold, silver and platinum. See special circular.

platinum. See special circular.

Dental and Surgical Instruments.—For this purpose Iridium has also proven very successful. In some cases where a durable point and one which does not corrode is desired, a solid point of Iridium is used, as is the case with hypodermic needles. These are made of gold and tipped with Iridium, and consequently are always clean and free from corrosion. In other cases, as with sounds, the instruments are plated with Iridium, preventing tarnishing and corrosion, and are No .... H 557 H 558 H 559 H 560 H 561 Size..... 314 x 314 4 x 4 414 x 414 5 x 5 514 x 514 Per pair. \$2.50 3.25 3.75 4.75 5.75 venting tarnishing and corrosion, and are always bright and clean, ready for use.

We may also mention that since the discovery of the process for fusing Iridium another step has been made in the discovery of a process of electro-plating with this hard No. H 1002, 1 inch, with Bronze Screws, comand almost indestructible metal. 1ridium plate has a handsome color, takes a high polish and is proof against tarnishing; it will not corrode, and, being many times harder than gold, silver or nickel, must be exceptionally durable. With these qualities, it is probable that Iridium will have a much larger place in manufacturing than it has heretofore held, and may turn out to be an exceptionally useful and valuable metal.

Among the articles made by the American Iridium Company are Iridium Draw-Plates, for drawing gold, silver, brass, steel or iron wire, in favor of which they make the following points: 1. They are the cheapest, on account of their durability. 2. They are The American Iridium Company, Plumb stronger than the ruby Plates and harder than steel; heat does not affect them, a the wire is uniform and smooth. 3. Twenty five thousand five hundred feet have been drawn through the Iridium Draw-Plate, with no perceptible changes in the wire gauge. 4. Wire can be drawn by hand or power as low as 35 gauge. 5. Each Iridium Draw Plate is tested and warranted.

The American Bolt and Screw Case Com pany, Dayton, Ohio, will soon put upon the market a sample Hardware Case, an article for which there has been some demand, and will also before long offer a new Bench Stop with novel features, which they expect will have superior qualities.

Our readers will observe, from the adver tisement of N. Portz & Co., Fostoria, Ohio, that they are offering the Magneto-Electric Curry-Comb for which they are agents. This article is constructed of zinc and cop per for the purpose of generating electricity when applied to the moist coat of the horse The scrapers, of which there are two, are made of steel, and are described as being magnetic at their poles, which is claimed to make them exceptionally effective as cleaners.

# NEW CATALOGUES.

strong points in its favor, while the fact that The illustrated catalogue of Wire Cloth it does not become annealed, like steel, when and Wire Goods manufactured by W. S exposed to high heat, and can be soldered to Tyler, Cleveland, Ohio, has been received. It comprises very full and complete lists of Brass, Copper, Iron and Steel Wire Cloths Locomotive Spark Cloth, Smut Cloths, Blued and Plated Mill Screen Cloths, Heavy Bolting and Battery Cloths, Paper Makers' Wires, Steel Mining, Ore, Coal and Sand Screen on page 4, and the Real Bronze Trimmings on the following pages of their pamphlet, are more durable than platinum. They do not oxidize or stick. Iridium contacts have made also with highly finished Plain Bronze than a year, have been in use more than a year, have been Guards, Wire Window Guards, Counter and

Rank Railings, Bank Inclosures, Elevator Guards, Skylight Guards and Wrought and Cast Iron Stable Fixtures. The department of Wire Railings and Bank Inclosures is very complete, and many new and handsome de signs are shown—a specialty of this class of work being made.

We have received the catalogue of W. R. Ostrander & Co., 19 Ann street, New York, manufacturers of Patented Speaking Tube Whistles, Speaking Tubes, Bell Tubes, Mouth Pieces, &c., of which they make an extensive and well-known line. The catalogue, which is finely printed, clearly illustrates the different styles of these goods which they make, as well as Ostrander's Patent Combination Bell Lever and Speaking Tube, and a line of Bell Hangers' Fixtures. It contains also the new Oral or Speaking Tube Annunciator, Combination Letter-box, Patent Pneumatic Bells, &c. We learn that in this

line of goods there is a constantly increasing trade, and that considerable quantities are exported to England, Australia and other foreign markets. Their advertisement will be found on page 12.

The Francis T. Witte Hardware Company,

111 Chambers street, New York, under date

of February I have issued correction sheet No. 1, making the changes in price which have occurred since the publication of their price list of 1883. In this sheet, as in the list referred to, they give net prices for the articles of Hardware that they quote. Looking over the changes which they note, an idea may be obtained of the extent of the shrinkage since the issue of their book last year, nearly all the alterations being in the way of

reduction.

The catalogue of the Lester & Lyman Manufacturing Company, of Millers Falls, Mass., exhibits the line of Housekeeping Hardware and Garden and Floral Implements which they manufacture. The list of goods includes Malleable Iron Rakes, Ladies' Hoes, Rakes, Floral Tools, &c., as well as Skimmers, Stove Lifters, Spoons, Meat Forks, Cake Turners, &c., with which they Stove Lifters, Spoons, Meat intimate that they are able to supply the trade at exceptionally low figures.

The Porter Manufacturing Company, of Burlington, Vt., and Chicago, Ill., have issued their price list for 1884, which illustrates the Window and Door Screen Corners and other goods which are made by them. Among these are Window Screen Frames as used for the lower window, and also with center piece for the upper window, and several patterns of Door Screen Frames arranged for two-panel, four-panel and double doors, They mention that they have taken a new departure this year and are making up Doors, certain styles of which they describe. These Doors are made with their new No. do Corner, with 21/4-inch sticks 3/4 inch thick, with center piece and wide base. They are stained to imitate black walnut, are complete with wire-screen cloth and ready to hang. They are recommended as superior to the old-style mortise and tennant doors. The manufacturers also make a variety of Corners for windows and doors and Pine Sticks for Window and Door Screen Frames. The book also illustrates Porter's New Patent Screen Door Latch and Porter & Billings' Patent Door Latch and Lock, the special features of which and their excellences are pointed out.

The Bonney Vise and Tool Company, No. 3015 Chestnut street, Philadelphia, have issued their catalogue and price list for 1884. It is substantially the same as their last, but we notice a more satisfactory typographical appearance, the pamphlet being larger, with for freight. Arrivals are small, and are clearer type, and better printed. The prices sold in advance. We quote No. 1 Irons as remain unchanged, except that the list on Vise No. 30 is reduced from \$48 to \$42 per dozen, and that on Vise No. 40 from \$72 to \$66 per dozen. These manufacturers mention a decided improvement in trade within the last two weeks, with a prospect of a sat-

isfactory spring business.

The following communication from Mr. Lockwood, who is widely known to the larger trade of the West as the representative of Graham & Haines, has been furnished us for publication, and we take pleasure in giving it a place in our columns. If his friends will act upon the suggestion he makes it will be a graceful manifestation of the sympathy they have for him in his mis-

NEW YORK, February 18, 1884. To my Friends: Having been injured in a railroad accident on the 9th of January, at Marshall, Texas, in which I sustained injuries that will deprive me of the pleasure of calling on you at present, I beg to say that any favors you may send to me personally, or to the house, will be fully appreciated and will have my personal attention. Hoping soon to be able to resume my visits to you, I am,

Yours, very truly,

W. J. Lockwood. Hoping

With reference to the circular of Graham Emlen & Passmore, which was published in The Iron Age of last week, Carr & Hobson, manufacturers of the National Lawn Mow ers, have issued the following communica tion to the trade:

New YORK, Feb. 5, 1884. GENTLEMEN: In common with several houses in the trade, we are in receipt of a circular letter issued by Messrs. Graham, Emlen & Passmore, and dated February 1, 1884, in which the following language is used, viz.: "We learn that certain parties, in Lawn Mowers that not only are a very broad infringement on the Passmore patent, but are almost a trade initiation of the Philadelphin." As some correspondence has passed between these gentlemen and curselves, the inference is that the circular rafers to curnew to take hold, and consequently there is a longer of the passmore patent, but are almost a trade initiation of the Philadelphin." Angles, 2.4 © 2.6¢ from store; Tees, a signist 105,972 in 1882, and 94,991 in 1885. Things, case. 1 160

Wringers, cs. 4 50

Wringers, cs. 4 50

Wringers, cs. 4 50

Saws, cs. 38

Pumps, pkgs. 5 210

Angles, 2.4¢ © 3.5¢ from store; Tees, a signist 105,972 in 1882, and 94,991 in 1885. Things, case. 1 160

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Saws, cs. 38

National Lawn Mowers. Without undertaking at this moment to discuss the merits of the claim, we beg to inform the trade that this company proposes to make and market the said National Lawn Mowers, and that it protect any and all purchasers of these machines. It is not the intention to infringe any valid patents held by the gentlemen question.

Yours truly, CARR & Hobson, Limited.

BUSINESS CHANGES. The partnership heretofore existing under the title of Patterson Brothers, 27 Park Row, in this city, between Henry A. Patterson, Edgar C. Patterson and Minot C. Kellogg, having expired by limitation on the 31st of January, 1884, H. A. Patterson, E. C. Patterson, M. C. Kellogg, D. J. Tingley, D. Nunan, E. Stagg, R. N. Brundage and M. F. Griffiths have formed a corporation under the laws of the State of New York, and will continue the Hardware and Metal business with the same title as heretofore of "Patter on Brothers."

On the 31st ult. John A. Koch retired from the firm of Westphal, Hinds & Co., Dubuque, Iowa. The business hereafter will be conducted by the remaining partners, Mary Westphal, F. Hinds, Chas. Nienstedt Wm. Westphal, the firm name of Westphal. Hinds & Co. remaining unchanged.

John Pritzlaff, Milwaukee, announces that the business hitherto carried on in his name will in the future be carried on under the corporate name of the John Pritzlaff Hardware Company, Limited, the active management remaining the same as heretofore.

## IRON.

American Pig. -Business is only moder ately active in Foundry Irons, and sales re ported are almost invariably of small lots. The character of these sales indicates that consumers in this immediate vicinity are purchasing a little more freely, and the desire for prompt delivery shows that they are very short of stock. Local Foundry trade seems to be slowly improving, and upon this foundation rests the hopes of those who are tooking for better business in Foundry Irons. It must be stated, however, that some of the local Iron dealers report their particular trade very quiet, and they are consequently inclined to take a less cheerful view of the situation than their more favored competitors. No weakness in prices is manifested, as there is apparently no disposition to force trade in this way, but the advent of spring is looked forward to with impatience, as it is expected that then the general resumption of outdoor activity will impart more life and vigor to business. In Mill Irons only limited transactions are reported. Holders have been offered terms for large lots slightly under the rates which have ruled for the past month, but we do not hear of such concessions having been made. Sales of Bessemer Pig have been made on private terms to the extent of some 8000 tons, one Bessemer Steel Company having bought about 5000 tons, and another 3000 tons from New York producers. We quote prices as follows, all at tidewater: No. 1 \$20.50 @ \$21, with sales of special brands or retail lots up to \$22; No. 2 Foundry, \$19 @ \$20 : Gray Forge, \$17.50 @ \$18.50.

Scotch Pig.-The situation has not altered in any particular since our last report. There is a fair demand for small lots, and prices are firm. Dealers report no weakness in Scotch bome prices, while freights are rising. For April delivery 6/@ 7/ is asked follows: Coltness, \$22.50 @ \$23; Shotts, \$22.50; Langloan, \$22.25 @ \$22.50; Sum merlee, \$21.50; Dalmellington, \$20.50 Clyde, \$20.25; Gartsherrie, \$22.50 @ \$23 from yard, \$21.75 to arrive; Eglinton, \$20 25 to arrive; Carnbroe and Glengarnock, \$22.50 from yard and \$22 to arrive.

English Bessemer Pig.-No transact tions are reported, as buyers' and sellers' views are hopelessly far apart. Sellers are firm at \$20 under advices from England that prices are firmer there, while buyers do not offer over \$19.

Spiegeleisen. - For 20 % Spiegeleisen \$28.50 @ \$29 is asked, but we are unable to learn of any sales. Importers appear to have determined that an advance shall be established, as they claim that prices are stiffer abroad.

Bar Iron.-From various sources an improved demand is reported. This improvement is not large nor very decided, but it is a movement in the right direction and inspires more confidence in the situation. Prices are still very unsatisfactory, but there is no indication of a change for the better being made very soon. The following quotations represent the range of the market very closely: Best Refined, from store, 2.15¢ @ 2.3¢; at mill, 1.85¢ @ 2.1¢; Common Iron, from store, 2¢ @ 2.1¢, and at mill, 1.7¢ @ 1.75¢.

Structural and Shaped Iron.-Orders for a considerable quantity of Bridge Iron have been booked within the past few days, and the outlook for the immediate future is considered very encouraging. Architects are said to be well employed in preparing \$4.0 \$4.10, and since then \$4.15 @ \$4.25 is designs for new structures to be commenced asked. Common and Refined command the designs for new structures to be commenced in the spring, which will require a great defiance of our rights, are offering Rear-Cut deal of Iron. Prices are quoted as follows:

little improvement in the demand, while prices are somewhat firmer. We quote: Common or Tank, 2.4¢ @ 2.6¢; Refined, 2.7¢ @ 2.75¢; Shell, 3¢; Flange, 3¾¢ @ 4¢; Extra Flange, 4½¢ @ 5¢.

Sheet Iron. -Business is of very moderate proportions, and prices are not very strong. For Heavy Sheets, Nos. 10 to 16, we quote 3¢ @ 3.2¢. Lighter sizes are quoted in our New York Wholesale Price List.

Steel.-General trade is dull, but dealers in specialties seem to have all they can do, though they also complain of unremunerative prices. We quote as follows American Tool Steel, 101/2¢, with a concession to large buyers; Crucible Machinery, 61/2 @ 7¢; Bessemer and Openhearth Machinery, 334¢ @ 4¢; Toe-calk, 354¢ @ 356¢; Sleigh-Shoe, 236¢; Tank Steel, 4¢; Boiler Plates, 4½¢@ 5½¢, with extra for special sizes; English Tool, 151/2¢.

Steel Rails .- Sales of small lots only have been made during the past week. There is nothing new in the situation. Sellers ask \$34 @ \$35.

Old Material.-No transactions in Old Rails have transpired. Quotations are nominally \$21.50 @ \$22. In Wrought Scrap there has been very little done of moment Best Selected from yard quoted at \$22.40 @

The Hudson River Iron Ore Company have contracted to deliver 200,000 tons of Ore to various furnace companies during this year. The Standard Steel Casting Company, of Thurlow, Pa., are now ready to receive orders for Steel Castings weighing from a fraction of a pound up to 20,000 pounds. Their Steel is made by the Crucible and Siemens-Martin or Open-Hearth processes, so that their castings can be drawn out under a hammer. They also manufacture castings which can be welded, and will contract to supply Steel Ingots of any grade of carbon desired. Their agent in this city is Charles Hubbard, No. 46 Cliff street. See advertisement on page 6.

## TRANSACTIONS ON THE NEW YORK METAL EXCHANGE.

The following transactions are reported to us as having occurred on the floor of the Exchange from Wednesday noon of last week to Wednesday noon of this week:

	W	EDNESD	AY, I	l'ebri	uar;	y 6	-Se	cond C	all.	
20	) tons	Americ	can N				arch		\$19.50	
10	3 **	6.6		66	66		66	*****	19.50	
900	3 46	44		4.6	6+	Ap			19.623	4
100	9 40	46		64	66				19.623	
24	5 44	Straits	Tin,	Ap	ril.				18.0	
56	) 11	1.6	6.6						18.0	
		8	ATUE	IDAY.	, Fe	ebru	ary	9.		
20	tons	Straits T		DAY,					.17.9	ð
10	tons	Straits	Tin,	Mar	ch.				.18	
25	6.6	66	44	66	16				.179	14
25	1.5	64	66	66						
25	4-6	44	66	64	66				17.8	0
				***						

On the days omitted there were no trans actions. The above transactions aggregate 600 tons of Pig Iron at \$19.50 @ \$19.621/2, and 180 tons of Tin at 17% @ 18.05¢.

# METALS.

Copper.-Our market during the week under review has been quiet and without any new features, sales being restricted to 000 lb Lake Superior at 14% @ 15¢, while other brands have ranged between 14¢ while other brands have ranged between 14\$ and 14\s/2\$\$. London has been down to £55. 10\$/ @ £56 with Chili Bars, and £63 Best Selected, the past few days. To-day we are cabled from there to the following effect: "Market a little firmer. Best Selected, £62. 10\$/ @ £63. 10\$/, and Chili Bars, £56 @ £56. 10\$/." In spite of this continuous decline in Europe, the confidence in the future of Copper on this side is in the future of Copper on this side is undiminished. It is believed that with the reopening of the spring trade this feeling will be corroborated by a good defeeling will be corroborated by a good mand for Copper and its manufactures. the moment the metal trade generally is under the influence of dullness in manufactured goods. General trade is to extent hampered in its dealings with the West by the inundations, and the inclemency of the weather has been intensifying the apathy. The official customs returns of the aparny. The official customs returns of the Spanish Government show that during the first eleven months of last year the export of Copper Ore was 521,060 tons, against Copper Ore was 521,060 tons, against 533,995 in 1882, and 417,735 in 1881, and of Ingot Copper 21,394 tons, against 19,920 in 1882, and 16,026 in 1881. Manufactures may be quoted as under: Bottoms, 24¢; Braziers, 24¢; Sheeting, 22¢, and Bolt Cop per, 24¢.

Tin.-London came last night £82. 10/ Straits Tin; here the market has, if anything, been weak at  $18 \not\in @18 \not\downarrow \phi$ , Straits, as to size of lots, on the spot. We receive this afternoon the ensuing cable message from London: "Market steadier; Straits Ingot, London: "Market steadier; Straits Ingot, spot, £82. /10 @ £83. 5/, and futures, £83. 5/ @ £83. 15/." Tin Flates.—Our market has been quiet, but unaltered. We repeat the quotations for ordinary brands, large lots, \$\frac{1}{2}\text{ box}: Charcoal Bright, \$5.45 @ \$5.75; do Ternes, \$4.87\\ \( \) @ \$\frac{1}{2}\text{ Coke Tin, \$4.65} @ \$4.75; and do. Ternes, \$4.37\\ \( \) @ \$4.62\\ \( \) Liverpool announces per wire a better fealing. but not a better variety. 84.02½. Liverpool announces per wire a better feeling, but not a better market, leaving the quotation for Coke 15/@ 15/6, and for Charcoal 17/6@ 19/. From London we are told that Tin Plates are weaker.

Lead .- There sold during the week between 400 and 500 tons Common Domestic at same price. St. Louis reports great strength at 33.6. Spain exported during the first 11 months of the year 116,341 tons of Lead, Pipe as heretofore, 15¢. and Block-Tin Pipe, 45¢, less the discount to dealers.

Spelter and Zinc .- Instead of improving, the market has been more inactive and lower than ever, Common Domestic now currently selling at  $4\,\%\,\psi$  (@  $4\,\%\,\psi$ . Silesian remains unaltered at, nominally,  $5\,\psi$  (@  $5\,\%\,\psi$ . Bertha Refined is unchanged at  $8\,\psi$ , and Sheet Zinc also the same as before,  $5\frac{1}{2}$ ¢ @  $5\frac{1}{8}$ ¢. We receive a cablegram from London reading as follows: "Market quiet. Ordinary at shipping ports, £14. 10/ @ £14. 15/." at shipping ports, £14. 10/@ £14. 15/."
Calamine exportation from Spain during the first 11 months of 1883 has been 28,639 tons. against 24,597 in 1882 and 28,512 in 1881.

Antimony-Has been moderately active at 11 1/4 Hallett, and 12¢ Cookson.

## IMPORTS

Of Hardware, Iron, Steel and Metals into the Port of New York for the Week ending Feb. 12, 1884.

Hardware, Alexandre F. & Co. Nails, kegs, 30 Case, 1 Boker Hermann & Co Hardware, cutle Clark Mile End Co.
Mach'y, cs., 24
Degrauw, Aymar & Co.
Chains, cks., 3
Chains, lengths, 3
Drexel, Morgan & Co.
Arms, cs., 10
Davies, Turner & Co.
Mach'y, box, 1
Downing & Co. R. F.
Mach'y, cs., 3
Field Alfred & Co.
Miles, cs., 37 Mdse., cs. Anvils, 20 Cases, 4 Casks, 12 Friedberger L. S. & Co Cases, 22 Cases, 22 Graef Cutlery Co. Gt. West. Disp. Co. Arms, cs., 28 Hartley & Graham, Guns, cs., 85 Machines, cs. 9

Hoe R. & Co. Mdse., case, 1 Kursheedt Mfg. Co Machines, cs., 2 Machines, cs., 22 Lamarche H. & Sons, Nails, cs., 15 Mongo L. Jr. & Co. Mach y, pkgs., 4 Moore's Sons J. P. Arms, cs., 14 Schoverling, Daly Gales, Arms, cs., 68 Smith & Sons, Mach'y, es., 10 Star Theo. B.

Star Theo. B.
Case, 1
Vom Cleff & Co.
Mdse., cs., 10
Wiebusch, Hilger & Co.
Hardware, cutlery
and guns, pkgs., 30
Chains, cks., 40
Witte John G. & Bro.
Cutlery. cs., 12 Cutlery, cs., 12 Order, Guns, cs., 21 Locomotive axle, 1 Nails, kegs, 92 Cases, 15

Cases, 15 Mach'y, case, 1 Iron. Alexandre F. & Sons, Bars, 80 Fish plates, bdls., 228 Bdls., 40

Fish plates, bdls., 228
Bdls., 40
Boits, cs., 64
Galv. iron, cs., 82
Baring Bros. & Co.
Bars, 2398
Coddington T. B. & Co.
Sheets, bdls., 276
Crocker Bros.
Spiegel, tons, 373
Spiegel, tons, 165
Spiegel, tot, 1
Cortis, R. J.
Bars, 366
Fremont F. L. & Co.
Bar iron, bdls., 492
Naylor & Co.
Wire rods, coils, 1811
Stetson Geo. M. & Co.
Pig. tons, 690
Tillotson L. G. & Co.
Galv. wire, colls, 270

Order, Wire, bdls., 12,496 Spiegel, tons, 450 Scrap, tons, 248 Rods, bdls., 24,797 Pig, tons, 160 Tubes, 36 Bessemer, pig, ton er pig, tons 200 Steel. Abbott Jere & Co. Rods in coils, bdls., 79

Cases, 13
Alexandre, F. & Sons,
Rails, 1017
Brown Bros. & Co.
Bessemer coils, tons, Besse... 71 Cary & Moen, Bundles, 413 coils, Bundles, 413 Rods, coils, 1303 Downing R. F. & Co. Bundles, 352 Lalance & Grosjean Mfg.

Co. Axles, bdls., 50
Sheets, bdls., 50
Sheets, bdls., 50
Naylor & Co.
Leaf spring, tons,
Temple & Lockwood,
Bundles, 67
Bars, 18
Cases, 3
Wagner W. F.
Bundles, 58
Cases, 6
Order, Cases, 6 Order, Flange rails, 2454 Rails, 1521 Billets, 1095 Rods, colls, 4579 Bands, 611 Forgings, 32 Wire rods, col 13,081 Bars, 4 Blooms, 122 Bundles, 200 Cases, 16

Cases, 16
Metals. Metals.
Alexandre F. & Sons,
Shot, cs., 25
Bank of Montreal,
Tin plates, bxs., 1618
Bristol Brass & Clock Co. Bristol Brass & Clock Co.
Mdse, cs. . 7
Coddington T. B. & Co.
K. C. B. tin plates,
370
Del. & L. Railroad,
Tin, black plates,
bxs., 125
Dickerson, Van Dusen &
Co.
Tin plates, bxa., 5696

Tin plates, bxs., 5696 Field Alfred & Co. Field Alfred & Co. Gun caps, cs., 22 Foote Emerson, Grain nickel, cs., 10 Hendricks Bros. Lead, pigs, 477 Lamarche H. & Sons, Lead, pige, 11.
Lamarche H. & Sons,
Rolled zinc, cs., 10
Rolled zinc, cks., 20
Merrick, C. S. & Co.
Tin plates, bxs., 185
Thelps, Dodge & Co.
Tin plates, bxs., 24,328
Struller, Lau & Co.
Gun caps, cs., 12
Ullmann Sig.
Metal ware, cs., 5
Wittemann Bros.

Wittemann Bros. Metal capsules, cs.,18 Metal capsules, cs., 18 Order, Tin plates, bxs., 9317 Spelter plates, 2065 Tin plates and tag-gers, bxs., 1147 Lead, pigs, 1050 Tin, slabs, 3862 Tin, ingots, 3863 Gun caps, cs., 5 Antimony, cks., 50

Of Hardware, Iron, Machinery, Metals, Ac., from the Port of New York, for the

week ending February	ary 12, 1884.
Quan. Val.	Liverpool.
Danish West Indies.	Quan. Val.
W. W	Metal g'ds, cse 1 \$86
I tillia, Musica	Hdw., pkgs 162 5,535
Hdw., cs 9 831	Pumps, pkgs. 6 415
Copper stills. 9 1,700	Sew. ma., cs 6 150
Nails, kegs 25 125	Wire cloth,cse 1 152
	Car wheels 50 350
Iron wheels 4 140	Mach'y, pkgs. 76 5,632
Wit Holl bulle or	Clocks, pkgs 425 8,278
Furnace 1 158	Scales, cs 3 200
Amsterdam.	Mf. iron, pkgs 27 547
	Ag. imp.,pkgs 54 2,074
	Cutlery, pkgs. 81 1,836
Ptlm., gals. 945,455 86,359	Firearms, cs. 4 865
Dutch West Indies.	Brass g'ds, cs. 4 252
Ptlm., gals 1052 121	Glasgow
Hdw., cs 2 35	Hdw., es 5 135
Bremen.	Mf. iron, pkgs 10 414
Ptim., gals 979,004 94,158	Iron pipes 63 660
Hdw., cs 23 350	Rotterdam,
Sew. mchs. cs 40 647	Ptlm., gals.293,465 27,584
Ag. imp.,pkgs 736 5,180 Mr. iron, pkgs 5 135	Leith.
	Ag. imp.,pkgs 10 325
Copenhagen.	Pumps, pkgs 3 85
Hdw., pkgs 15 515	Hdw., pkgs 4 162
Clocks, cs 17 420	

Wringers, cs. 14 Ag. imp.,pkgs 6 Hull. Cartridges, cs 5
Pumps, pkgs 5
Rollers, cs 7
Tacks, cs 7
Mach'y, pkge 1
Clocks, pkgs 109
Hdw., pkgs 63
Hooks, cs 15
Ag, imp.,pkgs 846
Pins, case 1 Hamburg Ptlm,gals1,171,607 111,200 Sew. ma., cs. .1330 23,335 Clocks, pkgs. . 104 1,831 Arms, cs..... Mach'y, pkgs. Ag imp., pkgs Hdw., cs..... Bristol. Nails, cs. . . . . Obrightania. British Australia.

Pumps, pkgs. Nails, kegs.... Ag. imp., pkgs 5 Mach'y, pkgs. 8 London.
Hdw., pkgs. . 177 8,497
Clocks, pkgs. . 48 1,306
Scales, cs. . . 7 123
Ag. imp., pkgs 153 1,685
Brackets, cse. 1 250
Tubing, case. 1 160
Wringers, cs. . 4 50
Mach y, pkgs 24 3,498
Saws, cs. . . 9 38
Pumps, pkgs. 5 210
Auturers London. Ciocks, pkgs. 160
Sew. ma., 0s. 133
Nails, kegs. 113
Wringers, cs. 6
Eyelets, cs. 5
Rifies, cs. 10
Cartridges, cs. 15
Wire, bdls. 5
Sew. mach. oil
cases...... 50 50 400 Kentucky Bale Rope..... " 3½ @ 4 ¢

Quan. Val. | S. rollers, bx 11 \$312 Zinc, cask W. closet W. closet. Iron, bdls. Saws, cs. 4,116 256 353 2,500 Ptlm. gals...12,752 Hdw., pkgs... 15 Sew. ma., cse. 1 Pumps, pkgs. Hoop iron,pgs Shot, es... Wash'g machs Copper, pigs. British Guiana. Mf. iron, pkgs 12 New Zealand. Pumps, pkgs. 3 300 New Brunswick. Ptlm., gais. 31,115 3,064 Revolvers, cs. Iron safes.... Nails, kegs ... Brass gds., cs. Havre. Mach'y, pkgs. 7 Clocks, cs. . . . 7 Hdw., pkge... 1 Ag. imp.,pkgs 29 Sew. ma., cs.. 41 m. needles. cse.
Nails, cs.
Q'ksilver,flask
H. nails, pkgs.
Lead, pigs.
Cop.nails,hhds
Anchors.
Cop. sheets cs.  $\frac{53}{464}$ Marseilles. Pistols, case... 1 Vises, case.... 1 Bordeaux. Mach'y, pkge. 1 Sew. ma., cs.. 17 Cop. sheets, cs Furnaces, bxs. Sew. ma., cs. 17 Ag. imp., pkgs 882 Iron drums... 50 Mf. iron, pkgs. 2 Cutlery, case... 1 Beyrout. Ptlm., gals. 296,600 20,650 Trieste. Dunkirk W. metal, bxs. Ptlm., gals.500,965 40,798 Lisbon Cette. Clocks, cs. . . 171 2,223 Hdw., pkgs. . 8 190 W. mills. . . . 4 478 Ptim., gals. 297,705 24,933 Cuba. Clocks, pkgs.. Argentine Republic Irons..... 10 Scales, cs... 58 Ag. imp., pgs. 173 Clocks, cs... 88 Hdw., pkgs... 27 Ammuni'n,cs. 4 Spikes, kegs... Ptlm., gals...35, Loco. mat.bxs Tacks, case... Tin, bxs..... Sew. ma., cse 1 48 Ptlm., gals...60,500 7,485 Pumps, pkgs. 7 674 Shoe nails., cs 50 210 Mach'y, pkgs. 2 1,600 el axles Hp. iron, bdls. Sew. ma., cs.
Pumps, pkgs.
Hdw., pkgs.
Mach'y, pkgs.
Mf. iron, pkgs.
Mf. iron, pkgs.
Sine plates, bx
Pilumbago, b'ls
Tubes.
Steel prop. bl's
Iron, pkgs.
Zinc, pkgs. v. ma., es. Central America: Hdw. pkge... 1 Cutlery, cs..., 3 China. Ptlm., gals.472,000 51,920 Venezuela. Sew. ma., cs. 13 Ptlm., gals... 6650 Nails, bxs... 20 Mach'y, pkgs. 15 Hdw., pkgs... 11 Scales, cs... 2 Porto Rico Ag. imp., pkge Mf. iron, pkgs. 2 18 Mach'y, pkgs. 51 8,800 Hayti. French West Indies. Ptlm., gals.... 353 Ptlm., gals....2000 Cutlery ..... 5 Shot, bags .... 12 French Guiana. Ptlm., gals....2000 Africa. Clocks, pkgs... Mexico. Cape Verde Islands. Mf. iron, pkgs 100 1,671 Hdw., pkgs... 8 336 Cartridges,cse 1 60 Tinfoil, bxs... 8 280 Ptlm., gals....2000 Cartridges, cse 1 60
Tinfoli, bxs. 8 280
S. m. oli, cs. 5 31
Boiler. 1 2,000
Clocks, cs. 2 98
Pumps, pkge. 1 38
Saws, cs. 4 90
Car sp'gs, pgs 2 70
Sew. mchs, cs. 31 708
Cutlery, cs. 3 34
Mach'y, pkgs. 90 4,098
P. caps, cse. 1 100
Nails, kegs. 88 295
Tacks, cases. 4 36
Ag. imp., pkgs 38 1,183
Ptlm., gais. 32,400 3,870 Japan. Tubes, cs. . . . Firearms, cse Cartridges, cs. Brazil. Hdw., pkgs... 361 Clocks, cs.... 24 Nails, bxs... 214 Ag.imp., pkgs 79 Nails, kegs... 40 4,779 457 1,030 1,100 102 379 51 8,977 415 200 250 358 1,125 77 57 Nails, kegs... 40 Cutlery, cs... 15 Cartridges, cs. 2 Ptim, gals...74,415 Sew. ma., cs... 25 Pumps, pkgs... 2 Irons, cs... 50 Tacks, bxs... 60 Whe ls& axles 170 H'p iron, bdls. 30 Scales, cs... 11 Firearms, cs... 3 Genoa.Hdw., cs..... 12 United States of Co-lombia. Ptim, gals...13,336 1,991 Hdw., pkgs... 426 8,511 Mach'y, pkgs... 192 18,712 Uruguay. | 8,511 | Uruguay. | 18,712 | Cartridges, cs. | 12,561 | Cutlery, cs. | 12 | 488 | Soales, cs. | 2,284 | Ag, imp., pkgs | 17 | 1821 | Mach'y, pkgs | 3 | 2,112 | Tacks, cs. | 16 | 110 | Clocks, cs. | 2,124 | Tacks, cs. | 48 | Ptlm., gals. | 60,000 | Mach y, pags.
Cutlery, cs.
Cartridges, cs.
Scales, cs.
Ag. imp.,pkgs
Clocks, cs.
Distil'g appa.
Windlass

# COAL.

10

Lead pipe, cs. Tin, bxs.....

The Anthracite Coal trade is dull, and for Egg prices are a little off, say about 10¢ ton. In other words, the market is ton. In other words, the milder temcient for present demands, the milder temperature serving to reduce consumption, and at the same time Bituminous Coals at the present cut rates are pressed severely into competition. Furnace and manufacturing sizes are more in request. From present in sizes are more in request. dications the half-time programme will be adhered to until the end of March. We quote Broken, \$4, f.o.b.; Egg, about \$3.90; Stove, \$4.50; Pea \$3.00 \$3.25; but prices are to some extent nominal. Lykens Valley Coal is advanced 25 cents on Stove and Nut. Bi-tuminous, as for some months past, is badly demoralized.

OLD METALS, PAPER STOCK, &c.

The purchasing prices offered by dealers are as follows :

п				
١	Copper, heavy % %.	\$0.11	@	.1134
ı	light	.10	6	41111
	Copper Bottoms	.10	60	****
	Yellow Metal	.0716	Gr.	
	Brass, heavy	.09	an.	****
	" light "	.07	GD.	
	Composition, heavy "	.11	CO.	
	Lead, heavy	.0314		
	Tea Lead	.0232	(a)	
	Zinc	.0234	an.	
		.14	60	
ij	Pewter, No. 1	.10	an.	
ı	No. 2		60	
ı	Wrought Iron ton,	12.00		12.00
	Light			13.00
	Stove Plate Iron	10,00		10.50
1	Machinery	14.50		15.00
ı	Grate Bars	4.50	CB.	
1	Stereotype Plates D.	.0456	a.	
1	Electrotype "	.0836	(00)	
ı	Small Type	.05	@	
п				

The prices current (prices paid by local

British Australia.	The prices current (prices paid by local
Ptim., gals96,000 13,252 Hdw., pkgs 954 12,319	delical and
Ag. imp.,pkgs 34 871	Canvas, Linen
Pumps, pkgs 17 1,176	White Cotton, New
Nails, cs 127 455	
Mf. iron, pkgs. 119 2,797	White, No. 1 384 @ 4 ¢
Mach'y, pkgs. 33 1,746	NO. 8
Clocks, pkgs. 160 3,000	Seconds >22 (C) 1 4
Sew. ma., cs 137 8,000	
Nails, kegs 113 480	MIXCH IMAGE:
Wringers, cs. 6 112	tunny pagging
Eyelets, cs 5 317	Jule Dutte
Rifles, cs 10 1,442	Kentucky Backing
Cartridges, cs. 15 308	
Wire, bdls 5 180	Newspapers 1 (b
Sew. mach, oil	Waste Paper and Scraps " 16 @

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## FOREIGN TRADE MOVEMENTS.

The following shows the imports of hardware and metals at this port for the last week, ending February 8

Trooms carried a continue,		American Company
	Pkges.	Value.
Antimony	75	\$4,702
Anvils	6	28
Brass goods	21	2,147
Bronzes	4	210
Chains and anchors	97	1,104
Clocks	10	661
Copper	-	265
Cutlery	112	28,309
Guns	44	7,452
Hardware	22	1,087
Iron, pig, tons	3,841	59.017
Iron, sheet, tons	18	1,298
Iron, other, tons	650	25,952
	820	2,961
Lead, pigs	50	4.621
Machinery	165	15,802
Metal goods	205	861
Nails	200	
Needles	19	8,530
Platina	1	4,058
Pins	- 6	799
Saddlery	6	1,807
Steel	6,550	39,222
Tin, boxes	34,862	146,895
Tin, 1,993 slabs	302,468	39,639
Wire	18	4,429
Zinc oxide	88	624

## PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St., PRILADELPHIA, February 12, 1884.

Pig Iron.—The demand has been only moderate during the past few days, and the general position shows no material change. The heavy engagements entered into last month relieve sellers from the necessity of looking for immediate business, otherwise the market might be in a less satisfactory condition than it appears to be. Reports from consumers are rather more favorable, however, and there is a general impression that the demand will show a healthy increase within the next few weeks. Quite a number important concerns have recently valuable acquisitions to their order books, and there appears to be substantial grounds for believing that the indications of improvement will soon develop into a revival of business along the entire line. The position is extremely sensitive, nevertheless, and there is a disposition to move very cau-tiously until the future can be more defioutlined than at present. S has been a gradual accession orders, both at furnaces and mills, and there is no doubt that they are better off in this respect than they were some weeks ago, although prices have not been fully maintained. The average for the first quarter of the year will in all probability hardly equal that of the last quarter of 1883, although, if the general anticipation is realized, a reaction is not far distant. Sales during the week have been chiefly on the basis of \$20.50 @ \$21.50, been chiefly on the basis of \$20.50 @ \$21.50, delivered, for No. 1 Foundry, and \$19 @ \$19.50 for No. 2, although the inside figures can still be shaded on lots of 500 tons and upward. The demand is chiefly for small lots, however, so that actual sales have been at the rates above quoted. Mill Irons are barely steady; in fact, to those who have to sell, the market is less favorable than it was during last month. Those who are strong enough to wait for a buyer, or have plenty of orders on their books, make no change in quoon their books, make no change in quo-tations, but a few weak spots have been developed, and in Mill Irons there is a slight tendency toward lower figures. Sales have been chiefly on the basis of \$18 @ \$18.50, delivered, for good brands, but in exceptional instances these figures have been shaded a little.

Foreign Iron.-Advices from abroad in dicate a firmer market, and Bessemer could not be had to-day on as favorable terms as two weeks ago. There is a possibility that bids of \$20 ex ship New York might still be accepted for moderate quantities, but sellers are very cautious in making firm offers, and, for that matter, buyers are almost equally timid. Speigeleisen (20%) is held at from \$28.50 to \$29, but there are no buyers likely to take hold at these prices for the present although bids of \$28 were made to-day.

Blooms.-There is no material change to notice, except that Unarthur more freely. Prices remain as sold rather more freely. Prices remain as before, viz. : Charcoal Blooms, \$55 @ 57; hefore, viz. : Charcoal Blooms, \$55 @ 57; Scrap Run-out Authracite, \$45 @ \$47; Scraj Blooms, \$42 @ \$43; Northern Ore Blooms \$30 @ \$41.

Muck Bars.—The demand has been some what larger than usual, sales amounting to several thousand tons during the week, chiefly at \$32 at mill. Lower prices have been named in some cases, but good qualities are held rather firmly at the price above

Bar Iron.—The market shows no material change, although there has been a somewhat improved demand from the smaller There is not much demand for large lots, and the orders sent in from day to day may be characterized as being from hand to mouth. There is some talk of heavy contracts to come on the market at an early date, but there is nothing definite about them, and it is not unlikely that at least some of them will be quietly dropped, the conditions attached to them being such heavy contracts to come on the market at an as very few parties would care to accept. The margin for profit is already far too small, and to accept part payment curities of uncertain value is not lil is not likely to find much favor in times like the pres The indications are rather more favorable general business, however, and prices are steady at 1.90 @ 20 for Best Refined according to quantity and specification.

P. S.—Attention is requested to the advertisement in "Special Notices" of a rolling mill to rent. There are some specially demill to rent. There are some specially de-sirable features in connection with this mill, details of which will be made known on application to the owners of the property.

Plate and Tank Iron.-There is not much of interest to report this week, except that the outlook for a good demand continues favorable, and hopes are also entertained that prices will improve. In the recent competition for two or three rather desirable orders prices were worked down to an unusually low point, and, while there is still considerable anxiety to secure business, it is not unlikely that the lowest figures have

there is room for more, the general position there is room for more, the general position shows a decided improvement within the past three or four weeks. Prospects are also of an encouraging character, and quite a number of inquiries are on the market for small lots. There is also some prospect of additional orders being given out for cable roads, so that, on the whole, manufacturers have reasons for expecting a fair average business. Prices remain as last quoted, vis.: Angles, 2.2¢ @ 2.25¢; Bridge Plates, 2.25¢ @ 2.3¢; T's, 2.75¢; Beams and Channels, 3.5¢.

Sheet Iron.-There is more demand, and sales have been considerably larger than the output, but prices are most unsatisfactory Competition Competition from outside points has run prices to a lower point than known for years, but there is a disposition to stiffen up to quoted rates, although buyers of large lots can still obtain the usual concessions. For small lots the prices are as follows:

	The same is a same in the same is a same in the same is a same is a same in the same in the same is a same in the same in the same is a same in the same is a same in the same in the same is a same in the same in the same is a same in the	
1	Best Refined, No. 28	
	Best Refined, Nos. 26 and 27	
1	Best Refined, Nos. 21 to 25	
	Best Refined, Nos. 18 to 20	
	Common, 1/4¢ less than the above.	
1	Best Bloom Sheets, Nos. 26 to 28	
	Best Bloom Sheets, Nos. 22 to 95	
	Best Bloom Sheets, Nos. 16 to 21	
(	Common Red Plates, 8-16 to 16	
	Blue Annealed	
i	Best Bloom, Galvanized, discount	
	Second quality, discount	

Wrought Iron Pipe.-A few more inquiries were made last week, and while at present busines is extremely dull, the outlook is not at all discouraging. Manufacturers are busy preparing for the spring trade, and seem to be satisfied with the prospect. and seem to be satisfied with the prospect. Prices are firm as quoted last week, viz.: Butt-Welded Black Pipe, 25 @ 30 % discount; Butt-Welded Galvanized, 15 @ 20%; Lap-Welded, 45 @ 50%; Galvanized, 25 @ 30%; Boiler Tubes, 47½%.

Nails—There is scarcely any change in this branch of the trade, except that the demand is slightly better and prices are a little firmer; \$2.60 is the ruling figure for ordinary sized lots, and \$2.50 @ \$2.55 as the lowest wholesale prices

Steel Rails-There has been very little doing of late, and prices are rather easy at from \$34 to \$35 at mill, according to quantity, &c. There is plenty of work to go on with however, for the present, so that in the meantime manufacturers are not pushing sales unless at prices within the figures above quoted. Buyers of large lots, suitable deliveries and prompt cash settlements would doubtless be well looked after, but, in the absence of such, prices are likely to remain at from \$34 to \$35, as previously

Old Ralls—There is more inquiry, but in the absence of supplies at what buyers con-sider fair prices, no sales have been made. Buyers' ideas are about \$22.50 for T's and \$23.75 for Bridge Rails, at which figures a few lots of 1000 tons would probably be taken. Sellers ask \$23 and \$24.25 respectively.

# PITTSBURGH.

(Special Dispatch to The Iron Age.) PITTSBURGH, PA., Feb. 13, 1884.

Physique Par., Feb. 13, 1884.

The Western Nail Association, at its monthly meeting to-day, reduced the card from the \$3.40 rate, where it has stood for nearly two years, to \$2.60, with usual terms and discounts. This is a virtual advance of 10 cents, and probably in the present state of mills, many of them having been flooded and not in condition to resume work for from two to three weeks, will be maintained.

The Pittsburgh Manufacturers of Iron and Steel, at a meeting held to-day, appointed Messrs. Jones, Keating, McClean, Gilpin and Weeks a committee to visit Washington to protest against the Morrison tariff bill

# Office of The Iron Age, 77 Fourth Avenue, Pressungs, Pa., Feb. 12, 1884.

The general Iron business opened up very well last Monday and Tuesday, and the prospect for a good week was fair, but Wednesday it became evident that a flood was on hand, and it proved to be the most disastrous on record. Since then there has been little or nothing done, nor is it likely that there will be much improvement for a weak or ten. will be much improvement for a week or ten days to come. A large number of mills and foundries were badly flooded, and it will require some time to get the mud cleared out of them so that they can be started up. The loss thus entailed will be considerable, but loss thus entailed will be considerable, but this could be overlooked if the Iron trade were only in a more promising condition. A mill owner, on being interviewed by a reporter of one of the daily papers, said that the men were busy clearing up the mill from the effects of the flood, but that they were about as profitably employed, so far as the owners of the mill were concerned, as if they were making Iron. This may be a little overdrawn, but the point was pretty well made. Prices of both the raw article the products are being shaved so very close that it is just about all both mill owners However, while the outlook is not all that could be desired, it might be and has been worse many a time. It is worthy of mention that there are no labor troubles at pres ent; the Window-Glass strike is at an end and the hitch between the Coal miners and operators has been adjusted. It is not likely that there will be any additional troubles for some time to come, although it is hard to foretell what a day may bring forth.

Ores .- The Ore trade continues very dull, improvement can reasonably be looked for while so many Pig-Iron furnaces

are idle Pig Iron.—The improvement in the de mand noted in our last report has been in-tefered with by the flood, many of the larg-est consumers having had their works submerged. There has been very little Pig Iron sold. The failure of Kloman Bros. hurts a number of furnaces and has a bad influence not unlikely that the lowest figures have just now, although it created but little surprise. This firm was in trouble a couple of years ago and obtained an extension. The effect of this failure has been to make sellers 3.85¢; Fire-Box 4.75¢

there is little or no margin for profit, and that it is simply foolish on their part to take paper for Pig Iron from buyers whose stand-ing is considered doubtful in the least. It is but proper to state that there are now but few, if any, buyers in the condition noted, but at the same time furnacemen prefer cash to paper, no matter how good the latter may be. We quote prices as follows:

sassay Do.	" c quote	Par we	CO GO TO	MOW B.	
Foundry G	rades		\$18.00 @	\$20.00, 4	mos
Neutral Mi	11		17.00 @	18.00, 4	6.6
All-Ore Mil	1		19.00 @	20.00, 4	4.6
White and	Mottled		15.50 @	16,50,4	
Silvery			18.00 @	18.50, 4	6.6
Cold-blast (	Charcoal		27.00 @	80.00, 4	6.6
Bessemer 1			20.00 @	21.00, 4	6.6

Muck Bar .- There is no demand, and in the absence of sales we continue to quote nominally at \$32, cash.

Manufactured Iron .- While the situation at present is not very encouraging, owing to the flood, there is every reason to believe that it will brighten up again in the near future. Prices may be fairly quoted on a basis of 1.75¢ @ 1.85¢ for Bars, 60 days, with usual discount of 2 % for cash.

Nails.-There was a special meeting of Western Nail Association called last week with a view to continuing the suspension a week or two longer, but as only a few members put in an appearance there was nothing done in the matter. According to the original agreement, the six weeks' suspension ceased on the 11th inst., and manufacturers are now at liberty to run or rest, as they please. As trade is dull, however, it is not likely that many of them will be in a hurry about starting up, although they anticipate a good spring trade, which usually opens up about the 1st of March. Prices remain uncharged at \$2.40, 60 days, 2 % off for cash, and 5¢ @ 10¢ additional in a jobbing way.

Wrought Iron Pipe .- Manufacturers continue to report trade dull, and they do not look for much of an improvement until next month. No change whatever in prices.

Sterl .- The demand for Merchant Steel is reported slightly better by some of the mills, and a still further improvement is expected and a still further improvement is expected from now on. None of the mills are working up to their full capacity. Prices remain unchanged. Best brands of Refined Cast Steel, 10¢ @ 11¢; do. Crucible Machinery, 5½¢ @ 6¢; Open-Hearth and Bessemer do.,

Old Rails. - There have been no sales re ported for several weeks, in the absence of which we continue to quote at \$23 @ \$24, according to quality, delivery, &c. There is inquiry, but buyers do not want to pay above \$23, and brokers say they are hard to get under \$23.50, and that there are not many offering at that figure.

Steel Rails.—Heavy Sections are still quoted at \$35 @ \$35.50, cash, at mill, for near-by delivery.

Railway Track Supplies. - There is not much inquiry at present, but an improved business is looked for next month. Prices remain unchanged. Spikes, 2½\$, 30 days; Splice Bars, 1.75\$ @ 1.85\$; Track Bolts,

Crop End —Are quoted at \$21.50 @ \$22 for American, and there is little or no demand.

Scrap.-Prices remain unchanged. Scrap.—Frices remain unchanged. No. 1 Wrought Scrap, \$20 @ \$21 net ton; Select Railway Shop do., 50¢ @ \$1 \$1 ton additional; Wrought Turnings, \$16 @ \$17; Old Car Axles, \$30 @ \$31; Cast Old Car Borings, \$13.50 @ \$14, gross; Wheels, \$18 @ \$19, gross.

Window tilass.—The most of the fac-tories will be started up within the next week or two, but it will be a month or six weeks before they have an assorted stock worked up. There is a very light demand at present, and manufacturers do not look for much business until April.

Coke.—An improvement in business reported, but prices remain unchanged at \$1 \$\epsilon\$ ton, free on cars at ovens, for blast-furnace Coke. Owing to interruption of railway transportation by the flood, shipments West will be curtailed for a week or 10 days.

Coal.—The warmer weather and resumption of navigation have had a bad effect upon the Coal trade.

# CHICAGO.

Office of The Iron Age, 36 and 38 Clark St., | Cor. Lake St., CHICAGO, Feb., 11, 1884.

Hardware.—The volume of business in with the rapidity that was generally anticipated. An average business is doing where the early indications pointed to a brisk trade. Spring goods are moving very slowly as vet. retailers buying very cautio and in such quantities as present consump tion demands. The month opened with brighter prospect than was expected, but the outlook is not so good as the month grows older. The orders thus far placed give evidence of being for filling up short

Nalls.-There seems to be nothing in the condition of the Nail market that has not already been discussed. In the way of demand there is no change, as Nails are sold only for consumption, which is weak and uncertain. In price the market has given evicertain. In price the market has given evidence for several weeks of a stronger feeling, but the permanency of this firmness is dependent upon the actions of the Nail manufacturers and future consumption—either being equally hard to define. On store lots \$2.55 @ \$2.60 are quoted, but on carload lots prices are not given, as buyers are not in lots prices are not given, as buyers are not in

American Pig Iron.-In expressing the week, we can do no better than refer the reader to our comment for the previous week. It is apparent that the market is week. It is apparent that the market is steady and current demand for carload lots largely predominant. Consumers keep them-selves thoroughly posted as to the prospect, and have settled down to the old hand-to-mouth system of buying, which, translated, means that they are of the opinion that prices are likely to remain for some months without on advance. Lower prices cannot without an advance. Lower prices cannot be expected, as there is a demand equal to production, but consumers have not con-3.55¢: Fire-Box. 4.75¢.

Structural Iron.—The past week has brought with it some additions to the order books of several leading concerns, and, while

more by waiting. Especially is this the more by waiting. Especially is this the case when we remember that an order cannot be placed for delivery beyond a limited time at the prices at which they are now buying Iron for immediate consumption. Occasionally we hear of furnaces having accepted small orders for delivery during six or nine months of the year, but these are the exceptions—the rule being to ask from \$1 to \$2 % ton for long-time futures. For present delivery, the market is firm and steady at the following quotations for carload lots, four months: Lake Superior Charcoal, Nos. 1, 2 and 3, at \$22.50 @ \$23; Nos. 4, 5 and 6 at \$24; Lake Superior Coke at \$21 @ \$22; Lake Superior and Ohio, mixed, at \$21; Ohio Standard Black Band, No. 1, \$22 @ \$23; Southern, No. 1, at \$20.50, and No. 2 at \$19.50; Silvery Soft at \$19.50 @ \$21; Anthracite, No. 1, at \$22. and No. 2 at \$21. sionally we hear of furnaces having acand No. 2 at \$21.

Scotch Pig.—The market for Scotch Pig is unchanged. The demand continues very much the same, with the exception that now and then a new convert to American Iron is reported, as an experiment, which in most cases proves satisfactory, thereby lessening the consumers of foreign slowly, but surely. Glengarnock and Summerlee are held at \$28, firm, for all that is called for,

Merchant Steel.—The past week has been one of less activity than the previous one. While the falling off has not been of any consequence, it has had a bad effect upon the market in general and suppresses the faint hope that had sprung up that the Steel business was about to enter a new era of prosperity. The cutting in prices, which had partially subsided during the lucid period of several weeks ago, is being again inaugurated by competing firms with greater vigor and greater detriment to profits. The general complaint now is that prices are unremunerative for nearly all the brands on the market, but notwithstanding this fact the eager ness to secure orders causes the manufac turers to hack them still lower. It is proba-ble that the grade of Steel will be reduced correspondingly in order to let themselves out whole in the end. For points where brands are brought in competition for orders, the price for Tool Steel is anything they can get from 8¢ to 9½¢, and so through the whole list. For the Best Refined grades we

CONTINUE O	ar quou	BUICHE	- GRIT	LOMO			
						Per p	
Best Refined	Cast To	ol Ste	eł		10	6	10160
Crucible Ca	st Machin	ery S	teel		6	14 @	6360
Open-Heart	h Machin	ery St	eel.		3	16 @	46
Bessemer M	achinery	Steel			3	40	46
Open-Heart	h Spring	Steel			8	Na (0)	46
Toe-Calk Sta	el				3	34 @	46
Sled-Shoe St	eel, flat.				2	40	80
Sled-Shoe S	teel, curv	red			8	14 0	8160
Bessemer St	eel				8	63	8144
Cast Plow 8	teel				5	0	5160
German Plo	w Steel				4	16 00	54
Syndicate S	teel				5	0	
Fire-Box an	d Boiler	Steel			5	16 @	64
Steel I	Raila _	Ther	a h	oing	no	don	and

for Steel Rails, the market has become quiet and uninteresting. Mills are generally sold up to their full capacity, and offer no induceents for further contracts. Their asking price is \$37 @ \$40, according to circum

Old Rails.-Old Rails are in better request than for some time past. The excessively cold weather and deep snows throughout the West have made track repairing next to impossible, and the stock on hand last fall is pretty well used up. For Chicago and Milwaukee delivery \$21 @ \$22 is quoted, but we learn of offers of \$23 having been made for several lots, which were not accepted.

Bar Iron .- Trade in Bar Iron continues fair, and the elements of an early active demand among large consumers is plainly seen. Inquiries for 1 o-ton lots are growing more numerous, and the sales to this class of trade aggregate several thous-sand tons per week. In the small jobbing class of trade aggregate several thous-sand tons per week. In the small jobbing trade the demand is fully as strong as last week, making upon the whole a very satisfactory market with some of the dealers so far as the matter of tonnage is concerned. Regarding prices there is less satisfaction. The low prices which were accepted late in the fall by many of the jobbers hang on to them like a loadstone, and not infrequently place them in a very unpleasant position. They now find themselves unable to get a good iron that they can afford to sell a former prices, and at the same time find i almost impossible to advance their price on their customers. While the Bar-Iron market is certainly stiffer, the Best Refined new puddled is still selling at \$2 @ \$2.10 rates, the same as it was quoted during December, but then not so firmly adhered to, which no advance, but the Old Rail Bar Iron, which costs nearly as much to roll, there has been from  $\frac{\pi}{10}\phi$  to  $\frac{\pi}{10}\phi$  advance since December 1 by manufacturers, which brings it up so nearly to the cost of new Puddled Iron that what they realize on it at their cut prices not only does not pay for the handling, but gives an immense favoritism to the better grade of

Norway Bars .- The demand for Norway Norway Bars.—Ine demand for Norway Bars continues fair and prices steady at 4¢ rates, as heretofore. Some outside reports say that sales have been made at 3½¢, but it is doubtful whether a pound can be bought in this market at those figures, reports to the contrary notwithstanding.

Bullders' Iron,-There being nothing ew to report, we continue the following quotations nominally: Tank, 2.7¢; Angles, 2.9¢; Beams, 3.6¢, and Channels 3.6¢@ 3.8¢.

Plate and Tank Iron.-Nothing of importance in demand or price has transpired since our last report. We quote Tank at \$2.50 @ \$2.60; Shell, \$3.25 @ \$3.50; Flange, \$4.25 @ \$4.50; Otis Steel Boiler Plate, \$6.50, improvement in the de which has not been very active for some

Galvanized Iron.-The market for Galvanized Iron affords very meager informa-tion, trade being quiet and not much pros-pect of revival. Juniata is quoted at 50 % off, and Refined at 50 and 10 %, as heretofore. Black Sheets.-Market dull and prices

weak, with plenty of cutting and any quantity of job stock to supply the demand. We quote No. 24 at \$3.20, Nos. 25 and 26 at

purchasing prices: No. 1 Wrought Scrap, net ton, \$17 @ \$18; Cast Scrap, \$7 net ton, \$15; No. I Stove Plate Scrap, \$7 net ton, \$16; Wrought Turnings, \$7 ton, \$8; Cast-Iron Borings, \$6; Old Plow Steel, \$10; Tool Steel, \$7 ton, \$20; Malleable Scrap,

Old Car Wheels.—We quote at \$17.50 Properties for Broken, and \$22.50 Properties net ton for Whole Wheels.

EVERETT & POST, 156 Lake street, Chicago, report to us as follows, under date of February 9, 1884: Pig Lead.—The past week has witnessed another speculative reaction. prices running up from 3½¢ to 3¼¢ asked to-day. The trade have not yet come into the market at 3¼¢ here, best bids being 3.6¢, 3.65¢ and 3.7¢, according to brand and delivery. It is unfortunate, as detrimental to the Pig Lead trade, to have these wide and rapid fluctuations, as it upsets calculations of both producers and consumers.

## CHATTANOOGA.

Office of The Iron Age, Eighth St., } CHATTANOGGA, Feb. 11, 1884.

General trade in the Southern section has improved steadily during the last two weeks. Sales of heavy articles are in larger quanti-ties. Contracts for the year's supplies are being generally made on fairly profitable terms for producers. There is in all lines of business a more steady and hopeful tone. The weather during the past week has been bad for outdoor operations. The last four days constant and heavy rains have fallen, swelling streams out of their banks, rendering outdoor movements impracticable and cutting down railway freights or stopping them entirely.

Pig Iron.-The Tennessee Coal, Iron and Railroad Company have closed out the stock of Pig they had on hand—a large amount, several thousand tons; terms private. Rockwood made a sale of 4500 tons during the week, and booked considerable orders for future delivery. Of the 17 bituminous fur-naces in Tennessee, Georgia and Alabama, 3 are out of blast, 2 of which and the new Citico will blow in within a month from this date. We quote No. 1 Foundry, \$18 @ \$19: No. 2 Foundry, \$17 @ \$15; Gray Forge, \$16 @ \$17; White and Mottled, \$14 @ \$15; Car-@ \$17; White and Mottle wheel Metal, \$24 @ \$26.

Ores.—We quote 50 % Brown Hematite. ton, \$2 @ \$2.75; Red Fossil, \$1.50 @ \$1.80, delivered at furnace.

Miscellaneous Articles.—Old Rails, \$22 and demand fair. Wrought Scrap, \$18 @ \$22; Cast Scrap, \$11 @ \$14; Old Wheels, nominal, \$18 @ \$20.

Nalls.—We quote Nails at \$2.50 for large bills, 60 days, 2 % off for cash; job lots, 10\$ @ 15¢ higher.

Merchant Iron .- Bar is in fair request at \$1.90 @ \$1.95, as per size of bills; Bolts, \$2.90 @ \$3.10 for Square and Hexagon Heads; Spikes, \$2.30; Splices, \$1.90.

Coal.—We quote Fancy Lump at \$3; Common, \$2.50; run of mine to manufactur-

ers, \$1.50 @ \$1.75 at mills.

Coke.—We quote at \$2 @ \$2.20 at furnace.

Foundry Coke, 8¢ @ 10¢ P bushel.

# LOUISVILLE.

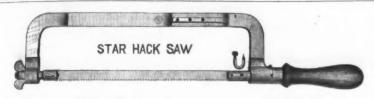
Gno. H. Hull & Co., of Louisville, report to us follows, under date of February 9, 1884: The market is firm in tone; some slight concessions have been made by fur-naces on odd lots of Iron they had on hand naces on odd lots of Iron they had on hand unsold, but for regular grades prices are firm and sales have been made for the year's delivery at full prices for the first six months, and 50% of the ton higher for the second six months. The demand is steadily increasing although some buyers are still holding off anticipating lower figures. Indications are that prices will be higher instead.

i	No. 1 Hanging Rock Charcoal		
a	No. 1 Southern Charcoal No. 1 Hanging Rock Stonecoal and	21.00 @	22.00
V	Coke	20,00 @	21.00
,	No. 1 Southern Stonecoal and Coke	19.00	19,50
	No. 2 Southern Stonecoal and Coke.	18.00 @	18,25
b,	"American Scotch "	17.50 @	18.00
t	Open Silver Gray	17.50 @	18.00
t	Close Silver Gray	16.50 @	17.00
_	MILL IBONS.		
l	No. 1 Charcoal	19.00	90.00
t	No. 1 Stonecoal and Coke, Neutral.	16.75 @	17.00
r	No. 2 44 44	16.25 @	16.50
	No. 1 " " Cold-short	16.50	16.75
9	No. 2 " " "	15.75	16.25
,	White and Mottled, Cold-short and		
1	Neutral	14.50 @	15.00
)	CAR WHEEL IRONS.		
	Hanging Rock, Cold-blast	28.00 @	80,00
	" Warm-blast	28.25 Q	28.50
	Alabama and Georgia, Warm and		

Cold-blast... entral Kentucky, Cold-blast...

W. B. BELKNAP & Co., Iron and Steel Merchants, Nos. 115 to 121 West Main street, Louisville, report to us under date of February 9, 1884: General trade, which on the cessation of the extreme cold had opened up finely, has received a sudden and severe check by the destructive flood now prevalent in the Ohio Valley. Continuous rains melting a large body of snow about the headwaters have brought on a recurrence of last year's disasters. A large portion of this city lying along the river bank is submerged, and the waters are still rising. Traffic along the river is totally suspended. The railroads all around us, except those running south, have been seriously embarrassed, and de-layed freight and late mails are subjects of general complaint. The losses at Pittsburgh and Wheeling are probably heavier than ever before from the same cause. Bar Iron.—There is decidedly better inquiry and good, round sales have been effected, but it is impossible to secure any advance in price. There is enough Iron for immediate requirements, despite the fact that several large and usually active mills on the upper Ohio are closed. Hoop and Sheets are rather dull; no change in prices to note. Nails. The supply held out wonderfully during the stoppage of the mills. Prices at the mills ranged from \$2.40 to \$2.50, and in this market from \$2.50 to \$2.65, according to customer and the nature of the bill. The present flood will prevent the mills starting Monday, and those who dropped pri monday, and those who dropped prices, discounting the probable decline, have had to advance them again, and it now looks as the following quotations, which are dealers' before a supply can reach us with the second to advance them again, and it now looks as though the market would be very bare before a supply can reach us

3



MEDINA, OHIO, Feb. 1, 1884. Millers Falls Co., 74 Chambers St., New York:

GENTLEMEN—Please send me 12 more of your new Hack Saws like the sample sent a few days ago. It cuts truly wonderfully. Our machinst sawed off a round bar of steel, 11/4 inches in diameter, in about three minutes. Just as soon as he cut it off he handed over the money for the saw, declaring it was his property. Respectfully,

A. I. ROOT, Publisher of "Gleanings in Bee Culture."

KANSAS CITY, Mo., Jan. 30, 1884. Millers Fulls Co., New York City, N.Y.:
Inclosed please find \$3 for two of your Star-Hack Saws and two dozen saw blades for same. The two sets were received to-day which were ordered last week, and their performance is so satisfactory that two of my friends asked me to send for sets for them.

Very respectfully.

Very respectfully, R. H. BACOT. MOSS POINT, Miss., Jan 19, 1884

Millers Falls Co., 74 Chambers St., New York : GENTLEMEN—Please find inclosed \$3:.05. for which please send two dozen "Star Hack Saws" (\$3:.4c), and one extra dozen 8-inch saws (\$5:cents), as per your price list. The Hack Saw you sent me a few days ago is THE thing. The two dozen more ordered are for mechanics in my immediate neighborhood. You may expect further orders soon.

L. M. HAND. Manufacturer of Steam Engines, Gang and Circular Saw Mills, Brass and Iron Castings Forgings, &c.

YANETON, Dak., Jan. 15, 1884. Millers Falls Co., 74 Chambers St., New York: Gentlemen—Send me one Star Hack Saw as good as you lately sent Mr. E. C. Johnson, my tenant. Find enclosed \$1.50.

We have sold many thousands of these Star Hack Saws, and, so far as we have heard, every one of them has given satisfaction. Hardware Dealers in all places will promote their own and the interests of their customers by keeping these goods in stock. There is a fair profit on them and not a bit of risk, as we will take back at any time all the saws which you wish to return, and pay freight both ways. Send for Price List.

# MILLERS FALLS CO.,

74 Chambers Street, . NEW YORK.



# BONNEY VISE AND TOOL CO., Limited,



Bonney's Pat. Vises.

Machinists' Tools and Hardware Specialties.

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As an evidence of the popularity of Bonney's Patent Vises, we have sold over 300,000 of them within the past four years, and the demand is still increasing.

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GENUINE BRONZE, BRASS, AMERICAN BRONZED AND JAPANNED HARDWARE,

Rim and Mortise Locks, Knobs and Escutcheons,

Apple Parers, Registers, Bronze and Cast Butts, First-Class Weighing Machines. STATIONERS' HARDWARE, &c.,

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ALFRED C. REX & CO., Hardware Specialties, Iron Toys, Novelties,

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Spring Specialties—Lemon Squeezers, Steel Ice Tools, Steel Blade Hatchets and Axee, Egg Beaters and Cake Mixers. Send for Catalogue.

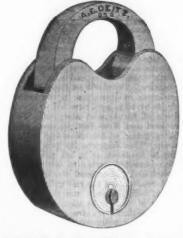
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MANUPACTURERS OF LIGHT AND MEDIUM WEIGHT

GRAY IRON CASTINGS

METAL PATTERN MAKERS AND JAPANNERS. Correspondence solicited.

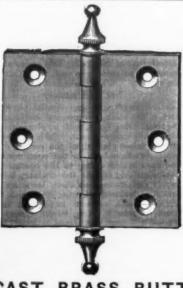


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97 Chambers & 81 Reade Sts., New York.



CAST BRASS BUTT HINGES

Polished and Plain Finish, Manufactured and kept in stock by

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HARDWARE, Nos. 16 & 18 Chambers St.,

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NEW YORK STANDARD SCALE CO.,



MANUFACTURERS OF EVERY DESCRIPTION OF

MANUFACTORY, KINGSTON, N. Y.

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esting Machines.

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L. COES'

Genuine and Mechanics PATENT

MANUFACTURED BY

L. COES & CO.,

Worcester, Mass.

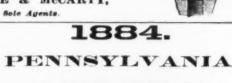
ESTABLISHED IN 1839.



Our Genuine Wrenches are made with straight bars, full width and enlarged jaw, having ribs cast inside, which strengthen the jaw and give a full bearing on front of bar. These improvements, in combination with our new ferrule, made with double bearings, an iron tube, fitted to the shank and resting against the lower bearings, rigidly held in position by the handle and nut, effectually preventing back thrust of ferrule (see sectional view), verify our claim that we manufacture the heaviest and strongest Wrench in the market. None genuine unless stamped

L. COES & CO., Worcester, Mass. Warehouse,

97 Chambers and 81 Reade Sts NEW YORK. DURRIE & McCARTY,



LAWN MOWER.

Has no Equal, Surpassing all others,

and pronounced

"THE BEST."

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WALTER S. LUDLOW, Cincinnati, Ohio. LLOYD & CLARKE, La Crosse, Wis. H. MITHOFF & CO, Columbus, Ohio. BURROUGH BROS., Kansas Ci'y, Mo. THE TODD-DONIGAN IRON CO., Louisville, Ky LAYMAN, CAREY & CO., Indianapolis, Ind

MARKLEY, ALLING & CO., Chicago, III.

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DUCHARME, FLETCHER & CO., Detroit, Mich.

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PERRIN BROS., Lafayette, Ind.

KRUSE & BAHLMANN, Cinclinnati, Ohio.

JANNEY: BROOKS & CO., Minn-apolis, Minl.

LOGAN, GREGG & CO., Fitsburgh, Pa.

E. WHITMAN, SONS & CO., Baltimore, Md.

8HULTZ & HOSEA, St. Joseph, Mo.

We have made the Inventing and Manufacturing of this class of Machinery

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for eight years, and have the Largest and Best Facilities of any Manufactory in the country.

Will be pleased to give Estimates on receipt of Sample Barb.

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In GENUINE BRONZE & IMITATION BRONZE. PADLOCKS.

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BUFFALO, N. Y., Manufacturers of

Price Lists sent on application

SEAMLESS THE DELUSION MOUSE TRAP.



The Mouse goes in to get the balt, And shuts the door by his own weight And then he jumps right through a hole, And thinks he's out; but, bless his soul, He's in a cage, somehow or other, And sets the trap to catch another.

I LOVELL MFG. CO., LIMITED ERIE, PA.

Barb Wire continues extremely weak. A huge demand is predicted for the spring, and we expect to see it verified. Meantime the manufacturers are busy cutting prices to catch trade.

## ST. LOUIS.

HOFFER & Co., Pig Iron and Iron Ore Merchants, 214 Pine street, report to us as follows, under date of February 9, 1884: We have no change to note since our last report. We quote:

HOT BLAST CHARCOAL IRONS \$19.50 @ 90.50

TELESCOPPIES	
Southern	20,00 @ 22,00
Ohlo	24,00 @ 26.00
COAL AND COKE IRONS.	
Missouri	19.50 @ 20.50
Southern	18.50 @ 19.50
Ohio	21.00 @ 25.00
MILL IRONS.	
Red-short	18.50 @ 19.50
Neutral	17.00 @ 18.00
CAR WHEEL AND MALLEABLE	RONS.
Missouri	19.50 @ 21.00
Southern	25.00 @ 28.00
Ohlo	98 00 @ 89 00

EVERETT & POST, 421 North Third street, St Louis, report to us as follows, under date of February 6, 1884: Pig Lead.—During the past week values have declined to sales at 34 New York, 31/2 Chicago, 31/2 St. Jouis, and a more settled feeling is notice-ble. So much as has changed hands has been for consumption, but we do not find manufacturers disposed to purchase beyond near-by requirements. We quote this market entirely nominal at  $3\frac{1}{2}$ ¢ for Common and Refined.

## BALTIMORE.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following, under date of February II, 1884: There has been no change to note in our market for the past week. tinue firm as per following list:

Ref. Bar Iron, 1 to 6 x 36 to 1... 7 h 2

" 1 to 436 x 136 to 1... 7 h 2

" 34 to 2, Round
and Square 5 7 @ 2 1-10¢ 2 @ 2 1-10¢
3 @ 3 1-10¢
21½ @ 3 6-10¢
3 2-10 @ 3 3-10¢
51¼ @ 55 ¢
4 @ 41½ ¢
10 @ 11 ¢
21½ @ 5 6-10¢
3 5-10¢ Spring Steel. 4
Common Horse Nails. 10
Railroad Spikes, 5½ x 9-16. 19
Perkins's Horse Shoes, ¥ keg of 100 b. Mule Shoes. . \$4.8714

R. C. HOFFMAN & Co., Pig and Railroad R. C. HOFFMAN & Co., rig and Railroad Iron Merchants, No. 21 South Frederick street, write as follows, under date of Feb-ruary 11, 1884: The Iron market for the past week shows decided improvement in the demand for best brands of Pig Iron—espe-cially Car Wheel Irons, which are in light stock—and prices firm at about following

Baltimore Charcoal Wheel Iron (all Baltimore Ore). Virginia Cold-blast Wheel Iron.... Anthracite, No. 1. 

# RICHMOND.

ASA SNYDER, Iron Merchant and Furnace Agent, writes as follows, under date of February 11, 1884: There is nothing to report of special interest concerning the Iron trade. Mills and machine shops are scaling wages to correspond with the reduction in manufactured goods. Prices are as follows:

No. 1 Scotch Pig Iron	\$23.00 @ 25.00
No. 1 Anthracite Pig Iron	22.00 @ 22.50
No. 2 " "	20.00 @ 22.00
No. 8 " "	19.00 @ 21.00
No. 1 Virginia Coke Pig Iron	19.00 @ 20.00
NO. 2	17.00 @ 18.00
No. 1 " Mill Pig Iron	16.00 @ 17.00
White and Mottled	16.00 @
Virginia C. B. C. Wheel	29.00 @ 82.00
Old Rails	23.00 @ 24.00
Wrought Scrap, No. 1	19.00 @ 20.00
Machinery Scrap, No. 1	17.50 @ 18.00
Old Dom. Nails. @ keg	2.75 @
Richmond Refined Bar Iron, P D	24
Horse Shoes (Tredegar)	4.00 @
Mule " "	5.00 @

# Our English Letter.

## Review of the British Iron, Steel, Metal and Hardware Trades.

(From Our Regular Correspondent.) LONDON, ENG., Jan. 28, 1884. THE WEEK

has not been very prolific in news for writers upon iron-trade subjects, and has been dull from a general standpoint. In point of weather the period has been sufficiently weather the period has been sufficiently lively for most of us, two of the most violent calls of record very lively for most of us, two of the most violent fore, I give a statement of the furnaces gales of recent years having prevailed on January 23d and 26th respectively. Each did great damage to property, and caused loss of life both on land and sea. In the loss of life both on land and sea. In the North of England, Scotland and Wales snow has fallen several times during the week, but in the South and West there has been no snow on the ground throughout the winter up to date, and all kinds of vegetation are far too forward. We have here primroses. violets, wallflowers, snowdrops, crocuses, &c., in flower, and I have even heard of ripe strawberries being gathered in the open air.
Anyway, the temperature has been most unseasonable, and the weatherwise ones among the old people are shaking their heads while uttering ominous forebodings as to the weather of the next two or three months. They quote 1853 as a similar season to this up to the end of January, whereas February and March brought intense frost and heavy snows, which completely threw the then season out of gear. If my memory serves me correctly they are right; certainly the Crimean war period was characterized by some of the most severe weather—especially as regards snows—of the latter half of the century. It would almost seem that the prophets are likely to be vindicated, seeing that since the terrific gale and thunderstorm of Saturday (January 26th) the temperature has rapidly fallen and we had a severe frost last night. In all probabitity a few weeks of low temperature would be an excellent thing for the agriculturists, who want frosts, and perhaps snow, in order to assist their

field operations. To you it may seem of small moment whether the limited area of Great Britain is or is not cultivated with success, but to our manufacturers the matter is of paramount importance, especially now that our export outlets have become so con-tracted and of such lessened value. The home market is our best buyer of manufac-tured goods; hence the anxiety with which the state of agriculture is being watched and reported upon from time to time. Some time ago there was a strong disposition manifested here to flout farming and all its at-tributes as being of relatively minor impor-tance—some said of no importance whattance—some said or no importance what-ever—when compared with the manufactur-ing industries. It is now beginning to be clearly seen that agriculture is of even greater importance to the nation than manufactures, seeing that it is only from the soil that we can actually increase the wealth of the country. The soil having been rendered less productive by a succession of unpropitious seasons, much of it has gone out of cultivation, and more can scarcely be sold or let at anything like reasonable prices. The country at large suffers hereby, not only in the provincial districts, but in London and the large towns, so that it is but natural that general attention should be paid to the weather and everything else affecting the interests of the farmers. With another good harvest or two the home trade would most probably take a favorable turn, and we would get a start on the up line once more.

has remained prominent since I last wrote, but there appears to be a lessened amount of criticism of its principles and details. For once in a way, the parties to the arrange-ments seem to have the courage of their convictions, and are going full speed ahead with their projects. A certain number of consumers of pig iron, and all the bears, of course, are offering their adverse views on the subject, but the situation is dead against their vaticinations, and the ironmasters sim-ply go on with the details of their plans as if under the compelling power of a stern and unrelenting necessity. In the North of England the restriction scheme alluded to in my recent letters and cables is now virtually reduced to a practical and practicable shape. Of the total number of furnaces in blast at the end of February, 18 will be stopped for a period of 12 months, and will not be

THE RESTRICTION QUESTION

restarted in the interval unless there should be such a revival in the iron trade as would exhaust stocks and thoroughly warrant an enlargement of the make to satisfy the then current demand. Such a contingency is most unlikely, however, and need not be taken into serious consideration in the teeth of the present depressed state of the ship-building, &c., industries. The owners of the furnaces to be stopped will be recouped for their losses by a payment of so much per ton (representing an average profit upon an average make at an average market price, computed monthly from the realized prices of other pig iron disposed of in the open market), under a system very much re-sembling the "pool" lately written about in the United States Whether the stop-page of 18 furnaces will be sufficient to realize the expectations of the association yet remains to be seen. I am afraid the number is too few—at least 25 furnaces should have been stopped, and the "pushing" of the remaining furnaces should

have been more strictly regulated. At the same time, I believe the Cleveland smelters are acting in bona fide concert, and that there is earnestness enough among them to rectify any little flaws in the organization as may be found out from time to time. The active co-operation of Scotland is being sought, but the ironmasters of that country seem disposed to pursue a very curious, and one might say anomalous, policy. Last year they were all agreed that a scheme of re-striction would be a capital thing, and it was openly given out that they were all will-ing to adopt it, with the solitary exception Wm. Baird & Co., who declined to take

	Furnaces.											
Brands.	In	blast.	Out.	ئدا								
Drames.	Ordi- nary.	Hema- tite.	Ordi- nary.	Buff								
Lanarkshire-			-									
Gartsherrie	9	0 ,	. 5	14								
Coltness	7	9	8.	12								
Langloan	- 5	0	2	7								
Shotts	8	2	1	8								
Calder	4	1	0	- 5								
Summerlee	4	9	2	8								
Chapelhall	2		1									
Carnbroe	4	0 -	2	6								
Clyde	4	0	1	- 5								
Quarter	0	0	0	. 5								
Govan	5	1	0	6								
Wishaw	2	0	1	- 8								
Monkland	0	0	2	- 6								
Almond (Store)	0	0	0	0								
	- 10											
Glengarnock	9 1	0	0	9								
Eglinton	9	0	- 4	5								
Lugar	5	0	0 1	7 8								
Muirkirk	9	0	0	D N								
Portland	9	0	. 2	- 4								
Dalmellington	4	0	4	- 6								
Cast Coast—	*	3		0								
Carron	3	0	1	4								
Almond	0	0 1	3	3								
Kinneil	22	0	12	4								
Lochgelly	0	0	4	4								
Bridgeness	0	0	9	12								
Lumphinnans	1	0	1	9								
			-	-								
Total	90	8	51	148								

lower wages in the West of Scotland will

disputes, having a strong tendency to

Of the total, 97, there are 88 running on ordinary Scotch pig, 8 on hematites and

I on silicious pig iron. There is, again, some talk of the alleged inferiority of certain brands of iron in store for which warrants are in circulation, but it is doubtful whether action will be taken in so difficult a matter by the Iron Brokers' Association. In any case, nobody dreams of imputing motives, or even carelessness, to the respected store-keepers. The ironmasters of Northampton-shire meet to-morrow to consider a scheme of restriction for their own district, which makes a common class of pigs much used in South Staffordshire and other finished iron localities. On the West Coast the strikes of workmen in opposition to the reduction of wages by 10 to 20 % have led to the damping down of furnaces at Maryport, West Cumberland and Moss Bay, leaving only 44 fur-naces going on hematites and 2 on spiegel-eisen. This restricts the production thereabouts by about 25 %, but prices have not been benefited, owing to the strikes at the Scotch and Eston Steel Works, and the lan-guid condition of the rail mills. Speaking of these mills reminds me that the preliminaries of the combination among the steel-rail manufacturers are not settled—that is to say, the agreement has not been signed by all the parties concerned. Further meet-ings have been held in London since I last wrote, and it is believed a settlement is immi-nent, the prime object being to effect a proportionate reduction of the make of all the mills participating in the scheme. In my next, probably, I may be enabled to give de-tails, or you may possibly receive them per cable. The New South Wales Government are at length advertising for offers to start the rail business in that Colony, an order for 150,000 tons of rails being held out as an in-ducement to those who wish to embark in the venture. Who speaks first?

THE IRON MARKET

has not undergone any special variations during the week, the general condition of the trade being quiet, with no clear prospect of an early improvement. Such movements as have taken place since the posting of my last report have been in the open markets, and have arisen owing to the operation of causes entirely outside the ordinary laws of supply and demand as those laws are gen-erally understood. During the week now ending Scotch warrants have been rather weaker, probably owing to the cessation of "cover" buying, and closed at 43/9 \$\overline{a}\$ ton. Makers' brands, on the other hand, have been firm, and in most cases are rather higher in price. Stocks are still increasing, while the shipments are on a fair scale for the season. At Middlesboro' matters have been quiet, and values have not been further enhanced, the probability being that quota tions will not exceed their present limits until the restriction policy is actually commenced at the end of next month. No. 3 may be called 37/@ 37/6, with other numbers pro rata, the shipments being on a moderate scale, albeit somewhat less to Scotland. In some quarters 40/ for No. 3 is pretty confidently spoken of in connection with the early part of March, but it is evident that the contingency is by no means a dent that the contingency is by no means a certainty, depending, as it does, upon the demand at the time. On the West Coast somewhat serious labor disputes are hindering the production of hematite pig iron, but prices are only fractionally firmer at 47/% ton for mixed lots in usual proportions. In the Midlands a trifle more is said to have been done in pig iron this week, but prices are nominal at 46/@46/6 for Derbyshire, and 44/@45/ for Northamptonshire sorts for South Staffordshire consumption. Spicgeleisen and ferromanganese are dull and easy. In heavy manufactured iron there scarcely any movements to note, but the works are not busy (except in the armor-plate departments at Sheffield), and quotations are cut down to very bare limits. This is particularly the case in respect of all grade shipbuilding iron. Scotch bars are £6. 5/; hoops, £7. 10/; nail

rods, £6. 10/; angle iron, £7; boiler plates, £7, and ship plates, £6. 10/@ £6. 15/@ ton, all of ordinary qualities and dimensions. Ordinary merchant iron is in poor request for home of Wm. Baird & Co., who declined to take part in any combination of the kind. The matter consequently fell through. On the present occasion the position seems to be reversed, although in reality I believe there are circumstances of which the trade are not generally aware. Messrs. Baird & Co. have stopped eight of the furnaces at the works believe there (Eartsharis & works believe there (Eartsharis & works believe there). are circumstances of which the trade are not generally aware. Messrs. Baird & Co. have stopped eight of the furnaces at the works belonging to them (Gartsherrie, &c., whereas the other smelters have made no organized movement in the same direction, At the same time, I am informed there is an intention to limit the make by individual action rather than by combination, the general view being that the movement now on foot to universally leaves we was in the West of Scotland will engaged, and there is no activity in any disconsistency. engaged, and there is no activity in any direction. The galvanizers are complaining of a slack inquiry and low prices, and the fencing-wire manufacturers at Warrington, in Shropshire, &c., are by no means busy. Other grades of wire are in better request. The Washburn & Moen Manufacturing Company facturing Company are advertising here their intention to prosecute all and sundry in-fringers of their numerous patent rights. They have already one action well advanced In iron rails there is no change, nor does there appear to be other than a very modest business in old rails and scrap iron. For Swedish hammered bars the call is tolerably good, and mostly on export account for India, Singapore or elsewhere in the East. Freights are virtually the same as when last reported upon, although for pig iron by or-dinary steamers—Glasgow to New York—5/ is now asked. A good deal of tonnage is is now asked. A good deal of tonnage is being laid up for want of employment. Steel is quiet, only the best-known Sheffield houses being tolerably well engaged. Steel castings of various kinds sell well. Vickers, Sons & Co., Limited, Sheffield, have the order for a new shaft for the Germanic, but lid not (as has been reported in some quarters) make the one which broke on board that steamer, nor the one belonging to the Celtic. The Bessemer trade is not lively, although two or three concerns are disposing of fairly large quantities of billets, bars, hoops and other rolled sorts, and other houses continue to do well in re-rolled railends. The Siemens' Works are well employed on plates and special lines. Some of their scrap material is understood to come in very well for nail-making, &c., purposes. Bes-semer blooms for export are not wanted, nor is there much new business in crop-ends—in-deed, the migration of the rail trade to the seaboard has had a tendency to restrict the

home traffic in these sorts of scrap. Steel rails are irregular and anything but active. Some of the largest mills cannot obtain orders sufficient to keep them going, even at prices which are said to have reached £4 ton—probably the lowest figure ever quoted in this branch. Within the past few days there have been rumors of the completion of the combination previously re-ferred to, and an order is said to have been placed at £5. 2/6 \$\text{\text{\$\text{\$\geqref{1}}}}\text{ ton, but up to the time} of writing I am without confirmation of either statement.

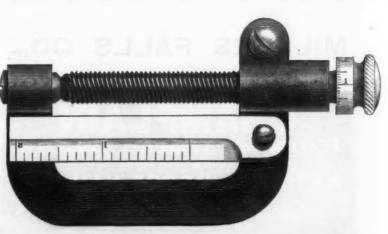
## SCOTCH PIG IRON

has not been so strong in the open "ring," and has fluctuated a good deal during the week as regards warrants. The bears, hav-ing covered their former sales by buying in, are now at their old game, and for the time being seem to be ahead of the bulls. Good judges think the bears are not at all likely to "get left," as your people phrase it, despite restriction and all the rest of the facts which apparently favor the bulls. As already shown, there are now 97 furnaces at work in Scotland, against 107 a year ago. In Connal's stores the quantity held is 588,474 tons, as compared with 602,843 tons this date 1883. Last week there was an addition of 799 tons. The shipments of Scotch pig iron this year have been 30,035 to the inch, an tons, or 2687 tons below 1883 to date. The decrease has been wholly in the foreign shipments, the coastwise total being ahead of last year. Importations of Middlesboro' pig into Scotland have been 21,830 tons—an in-

United States are called 15/6 @ 15/9, for usual sizes, and 16/@ 16/3 for special sizes of I. C. grades. At 15/3 a much larger business could be done, but makers decline to go below 15/6. In coke-tin wasters much more might be done at 14/6, instead of the ordinary charcoals are changing bands at 17/0, instead of the large of eem to be running the lower grades of char coal very close, particularly for your market. In ternes business is quiet, on the basis of 15/6 @ 16/, I. C., 14 x 20, and 32/ @ 32 6 for C., 28 x 20. Liverpool houses do not like to see the constantly-increasing direct shipments from Swansea to United States ports.

## Patent Micrometer Caliper.

The instrument shown in the accompanying cut, and made by Messrs. Frasse & Co., 62 Chatham street, New York, is designed for measuring accurately by thousandths of an inch any thickness of material from inches to the smallest size. The graduaterule can be folded back, as shown in illustra tion, when not in use, thus making it a convenient pocket tool. The screw is 20 thread to the inch, and the head is graduated to fiftieths, so that each graduation on it repre sents 10 m inch. The scale is graduated in tenths of an inch, giving the advantage of reading tenths by the scale and thousandths by the head. When in use the scale is



Patent Micrometer Caliper.

crease of 1,409 tons. Writing from Glasgow January 25, James Watson & Co. said: the latter. Errors that may occur by wear ton this last week, with only a limited busiscrew. ton this last week, with only a limited business done. Shipping brands are firm in price; at the same time the demand is somewhat quieter. The warrant market opened lively on Monday morning at 44/7½ \$\frac{1}{2}\$ ton, but rapidly declined to 43/10½, cash. On Tuesday it commenced at 43/9½ (a 43/11½, tolosing at the former figure. Yesterday it closing at the former figure. Yesterday it opened weak at 43/8½, receded to 43/7, and then recovered to the opening figure. Today the price advanced in the morning from 43/8 to 43/9½, relapsing in the afternoon to 43/8 to 43/9½, relapsing in the afternoon to the former figure and closing sellers thereat.

we quote.															
														No. 1.	No. 8
G. M. B., at	Gla	sgow					0				۰		0 0	45/6	43/
Clyde,	1	bo.			0	0	0	٠	0	0	0. 1		 	48/	45/1
Coltness.		66												58/	52/
Langloan,		16												55/6	51/6
Gartsherrie,	4	16												54/	52/
Summerlee,		. 6												58/	49/
Calder.	1	54												55/	48/
Carnbroe,		16												W/D /40	49/
Glengarnock,	44	Ardr												58/	46.7
Eglinton.	46		6	*						0 1	0 1		 . 0	47/	447
										0 1	0 1	5		40/0	477
Dalmellington														49/6	47/0
Shotts, at Lei														54/	DM/
Kinneil, at Bo														47/	46/
Carron, at Gr.	ang	emou	1ŧ	h	į.									497	47/8

# MIDDLESBORO' PIG IRON

is just a shade easier than was the case at the date of my last letter, owing to the lassi-tude of the trade in all parts of the country and the increasing dullness of the shipbuild-ing yards. The arbitrator in the wages matter has disappointed both parties by deciding in favor of a continuance of the present 7/ rate for puddling. At Bolckow-Vaughan's, a start is likely to be made with the 2000 non-union men. The unionists are very turbulent and are said to have waylaid Mr. Richards's carriage, but Mr. Richards was not therein at the time. For G.M.B.,

8	u	al condit	ion,	, prices	are:
6	0. 1	Foundry		41/8 [	Mottled 85/
	9	86		39/3	White 34/
6	- 8	6.5		37/3	Refined metal 54/
6	4	9.0		. 36/4	Kentledge 40/
0	4	Forge		85/6	Cinder 88/

The periodical return of Mr. Waterhouse to the Arbitration Board is as follows: GENTLEMEN.—Having collected from the firms and companies belonging to or associated for this purpose with, your board, the returns of their sales of manufactured iron during the two months ending December 31, 1883, and having verified the same by 1803, and naving vertical and the same as a sa net selling price of each:

Sales During the Two Months Ending December 31, 1883.

Description.	Weigh	ht in	voic	ed.	Percentage of total.		Average net	per ton.
Rails	Tons.	cwt	.qrs	.lbs.	477	£	B.	d. 8.28
Plates	74,898	11	- 0	0	68.11	5	19	10.98
Bars		11	1	- 5	18.08	6	0	5,86
Angles	20,079	14	1	11	18.39	5	9	1.24
	109,220	7	- 8	10	100.00	5	17	11.84

# TIN PLATES

are much as when last reported upon. A few additional inquiries are to hand from the United States, but I do not learn that business has as yet resulted in all cases. From Bakou and Batoum numerous orders are coming to hand for plates needed by the petroleum people. Ordinary coke tins for the

# INDUSTRIAL ITEMS.

The rolling mills at Portland are doing more business than at any time, except one month, since they were started. Last week they turned out 700 tons of iron, and their orders are in excess of the supply.

# CONNECTICUT

The stockholders of the Bridgeport Knife Company at their annual meeting elected the following board of directors: Anton Trunk, William H. Bliss, Charles J. Healy. At a subsequent meeting Anton Trunk was elected president, Charles J. Healy, vice-president, and William H. Bliss, secretary and treasurer

## PENNSYLVANIA

The rolling mill of McLanaban, Smith & Co., at Hollidaysburg, has shut down again indefinitely, after a short run.

Gap Furnace, at McKee, owned by the Hollidaysburg and Gap Iron Company, was blown in on February 8, after an idleness of several months.

The personal property of the Union Foundry and Manufacturing Company, Nor Reading, was sold last week by the sheriff

It is stated that a factory is being erected in Catasauqua for the manufacture of pav-ing blocks from blast-furnace slag, by the process of a Mr. Diebold.

The Keystone Iron Works, Reading, will ume operations this week. During the idleness, additions and improvements ha been made to the machinery.

Joanna Furnace, in Berks County, has shut down for the purpose of putting in a

It is stated that the Mt. Hickory Iron Company, Limited, of Erie, owners of the recently burned rolling mill at that place, are endeavoring to purchase the Greenville rolling mill of P. L. Kimberly & Co.

Colebrook Furnaces are keeping up their reputation. In a run of 64 weeks the average yield of stack No. 2 has been 501 ¼ tons, and since the 1st of January last the average has been a trifle over 543 tons per we Taking into consideration the fact that this was done on Cornwall ores, one of the hardest reducing ores known, it must be ad-mitted that these are highly creditable per-

Warwick Furnace, at Pottstown, made week before last 455½ tons iron, Nos. 2 and 3, using 1¼ tons coal per ton of iron, with 49 per cent. ore. The size of the furnace is 16 x 50.

Stack No. 3, Lebanon Furnaces, made last week 602 tons of pig iron.

A large number of striking Pottstown nailers have left that place for Clifton, W. Va.

The Mellert Foundry and Machine Works are making the ironwork for 250 coal cars now building by the Philadelphia and Read-ing Railroad Company.

# PITTSBURGH AND VICINITY.

Henry Stanton, assignee of the Manchester Iron and Steel Company, has filed a partial account showing that he has extinguished \$100,000 of the company's debts, leaving the total assets \$312,922.57, and the liabilities

# WHOLESALE METAL PRICES, February 13, 1884.

M	Ε	T	A	L	S	

| HON。-- DUTY: Bars, 8-10¢ to 11-10¢ 質 节; provided that no Bar Iron shall pay a less rate of duty than 35%. Sheet, 11-0¢ to 15-10¢ 質 形. Band, Hoop and Scroll, 1¢ to 14-10¢ 質 形. Railroad Bars weighing more than 25 形 浸 yard, 7-10¢ of 1¢ 質 形.

Foundry No. 2 Pton \$30.50 @ 22.00
Froundry No. 2 Pton 19.00 @ 20.00
Gray Forge Pton 17.50 @ 18.60 | Carnbroe | P ton | 17.50 @ 18.50 | Nickel, Chloride and Ammonia | 65 | Acid, Muriatic, 39° | 0.4 | Acid, Muriatic, 39° | Acid, Muriatic, 39° | 0.4 | Acid, Muriatic, 39° | Acid, Muriatic, 39° | 0.4 | Acid, Muriatic, 39° | 0.4 | Acid, Muriatic, 39° | 0.4 | Acid, Muriatic, 39° |

Halls.	Steel, at Eastern milis	F ton 31.00 @ 35.00
Old Rails, Ts	F ton 21.50 @ 22.00	
Serap.	Wrought, F ton, from yard	22.40 @ 23.00
Har Iron from Store	4 to 1 in round and square	1

24 to 2 in. round and square... 28 to 2 in. round and square... 1 to 6 in. 23 d to 1 in... 28 to 2.30¢ 1 to 6 in. 23 d and 5-10... 28 to 2.40 @ 2.50¢ Rods - 56 and 11-16 round and sq. 28 to 2.30 @ 2.40¢ Bands - 1 to 6x3-16 to No. 12... 28 to 2.50¢ Burden's Best' Iron, base price... 28 to 3.7¢ Norway Nail Rods. ... 554 @ 546¢ Sheet Iron.

addition to ordinary to tion to above; Steel Circular Saw Plates, 17 p. in addition to the above.

American Cast Steel.

For American Steel, see Pittsburgh quotations.

Best Cast.

Best Double Shear

Best Double Shea

Tin Boiler Plates. COPPER.—DUTY: Pig, Bar and Ingot, 4#; Old Copper, 3# \$ 5. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem. 000 1534# @ 16 #

Braziers' Copper, ordinary sizes.

16 oz. \$\partial \text{sq. ft. and over.} \text{under 16 oz. and over.} \text{under 16 oz. and over 12 oz. }\partial \text{sq. ft.} \text{praziers' Copper, ordinary sizes,} \text{under 16 oz. and over 12 oz. }\partial \text{sq. ft.} \text{praziers' Copper, ordinary sizes,} \text{under 16 oz. and over 12 oz. }\partial \text{sq. ft.} \text{praziers' Copper, ordinary sizes,} \text{under 16 oz. }\partial \text{sq. ft.} \text{under 17 oz. }\partial \text{sq. ft.} \text{under 17 oz. }\partial \text{under 18 oz. }\partial \text{under sq. ft.

Braziers' Copper, 10 oz. and 19 oz. 9 sq. ft.

Lighter than 10 oz. 9 sq. ft.

Circles less than 84 in. in diam.

84 in. diam. and over.

Segment and Pattern Sheets.

Locomotive Fire-Box Sheets.

Sheathing Copper, over 12 oz. 9 sq. ft.

Bolt Copper. Tinned Sheathing, Planished, 14 x48, 14, 16 oz. Tinned Sheathing, Planished for boilers, 7, 8, 9 oz. Nickel-Plated Sheathing.

Plating extra... Flat Copper Boiler Bottoms or Pit Bottoms, cut to special sizes... 

LEAD.—Duty: Pig, \$3 \$100 fb; Old Lead; 24 \$1 fb; Pipe and Sheet, 34 \$1 fb. 

.6kg#, dis 10 s .1kg, dis 10 s .734#, dis 10 s . Drop, 7#; Bnek, 8# Pipe.... Tin Lined Pipe.

	NICKEL. Metallic, in grains. Metallic, in grains, \$\partial 100 \text{ b lots.} Metallic Anodes.  \$ \$		1.05
,	Nickel-Plating Material	s.	
)	Composition, Cutting	39 Th	80.07
	Composition, Cutting in bbls	6.6	.05
	Composition, Emery Cake	0.6	.07
	Composition, White Tripoli	6.6	.10
ì	Sulphate and Ammonia	4.6	.40
í	Nickel, Chloride	4.6	1.00
í	Nickel, Chloride and Ammonia	6.6	.65
	Acid, Muriatic, 20°	6	.04
	Acid, Nitric, 38°	0	.10
1	Acid, Sulphuric, 66°	9.6	.04
,	Rouge, hard and soft, for Nickel	6.6	.20

BABBITT METAL. N. P. U.... 

Galvanized Stone Wire.

Steel Wire. Cast Steel, Steel Wire list ...dis. 50 ≰ Brass and Copper Wire. Old English Gauge the Standard. -Dis 10 @

\$0.26 

MISCELLANEOUS TINNERS' STOCK. Solder

GLASS.

Prices current per box of 50 feet. List, July 2, 1888.

| 1st. | 2d. | 8d | 4th. 14347 63 14947 6 x 8 to 10 x 15. 11 x 14 to 16 x 24. 15. 12 x 14 to 16 x 24. 15. 15 x 36 to 24 x 36. 15 x 36 to 24 x 36. 15 x 36 to 24 x 36. 26 x 36 to 26 x 44. 26. 60 x 26 to 30 x 20. 60 x 26 to 30 x 20. 60 x 26 to 30 x 20. 60 x 36 to 36 x 26 to 36 x 2 \$18.50 \$11.50 \$10.75 \$10.25 \$10.25 \$14.50 \$13.50 \$12.50 \$11.50 \$10.25 \$14.00 \$10.25 \$1 Double.

Sizes. | 1st. | 2d. | 8d. | 4th. \$17.50 \$15.00 \$14.00 \$18.00 \$0.00 \$18.00 \$16.50 \$4.00 \$28.00 \$20.00 \$5.00 \$4.00 \$21.00 \$0.00 \$28.00 \$24.00 \$3.00 \$1.00 \$27.00 \$3.00 \$1.00 \$27.00 \$3.00 \$30.00 \$27.00 \$3.00 \$30.00 \$27.00 \$30.00 \$30.00 \$27.00 \$30.00 \$30.00 \$27.00 \$30.00 \$30.00 \$27.00 \$30.00 \$30.00 \$27.00 \$30.00 \$30.00 \$27.00 \$30.00 \$30.00 \$27.00 \$30.00 \$30.00 \$27.00 \$30.00 \$30.00 \$27.00 \$30.00 \$30.00 6 x 8 to 10 x 15.

6 x 8 to 10 x 15.

11 x 14 to 16 x 94.

18 x 32 to 90 x 30.

18 x 32 to 90 x 30.

26 x 8 to 10 x 15.

27 x 95 to 30 x 30.

28 x 95 to 30 x 30.

28 x 95 to 30 x 54.

29 x 95 to 30 x 54.

20 x 46 to 30 x 50.

20 x 95 to 30 x 54.

20 x 56 to 34 x 30.

20 x 95 to 30 x 54.

20 x 56 to 34 x 30.

30 x 60 to 40 x 50.

Sizes above—\$15 per box extra for every 5 inches.
An additional 10 per cent. will be chared for all Giass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the united 84 mehrs bracket. Discount, 70 and 10 to 75,

PAPER STOCK, &c.

(Dealers' Selling Prices.)	- 1
	. 1
Cents # 1	
White Shirt Cuttings, Fo. 1 7. 66 7.	4
4 WO. 2 (14 M 6	-
Mill Assorted Whites 554 @ 5	4
Unbleached Muslims 64 6	21
Oity Watter, No. 1	5
OBY W 01000. RO. 1	8
New Canton Flannels 6	4
New Seconds, light 3/4 @ 3/	6
4 dark 25 0 3	-
No. 2 Whites	6
Ootton Canvas 434 @ 43	21
Inen Canvas Fo. 1 424 (8 4)	2
AMOUNT COMMENT OF THE PARTY OF	4 1
leconds, City No. 1 13, @ 1)	4
seconds, City No. 2 1 @ 15	61
30iors, # cwt 70 @ 90	
lantia kope alia @ 33	6
" Tarred 250 @ 25	7.1
lunny Baggirg No. 1	
No. 2 156 @ 15	1
Centucky Bazging 4	9.1
urlap Hagging No. 1 214 @ 25	11
ar Shakings 1% @ 2	
lemp Twine Stock 4 2 44	
lard White Shavings, No. 1 286 a 4	
oft White Sharings No r	

White Shavings, No. 2, Soft	-910	
Mixed Shawings mant White	274 18	3
Mixed Shavings, part White	256 GB	3
Ledger and Writing	3 68	3
BOHQ STOCK	214 68	
Book Stock. No. 1, light		
Old Newspapers		1
Dane Manufacture	X 69	1
Pure Manilas	134 @	
Bogus Manilas and Hardwares	Bis (40)	1
Commons, per 100 lbs	60 60	
Binders' Board Cuttings	00 (9	79
Stenar Board Cuttings	76 GB	1
Straw Board Cuttings, Fewt	70 @	74

PAINTS, OILS, &c. | 12 | 160 | 161 | 162 | 162 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 

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Flock 5,6

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nly adjustable Wire Cloth Sleve made. It will t good seed from the refuse of windmills that be cleaned by any other process. Can be ad-to many different size and shaped meshes, eve will separate Plantain, Daisy, Buckhors, arrot, &c., from Clover Seed. Red Top and from Timothy, and Timothy from Clover fo. swill separate Rye, Cheat and Cockle from No. 3 graces Peas, Beans and Cor. Indorsed Plant Section. In Perry & Co. D. Landreth Plant Section. In Perry & Co. D. Landreth his Sons, R. K. Blins & Sons, J. L. Breck & Sons, ricultural Dept', Washington, D. C.

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Celebrated Tailors' Shears, Trimmers, Scissors, &c., Japanned and Nickel-Plated Every pair warranted.

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# SPECIAL DISCOUNT TO THE RETAIL HARDWARE TRADE.

Full directions furnished for putting on the Pads. Address all orders

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PATENTED NOV 26.1810. Stubs' Files, Tools and Steel, Grobet Swiss Files, CHESTERMAN'S MEASURES,

Hubert's French Emery Paper, Horseshoe Magnets, &c. WM. SMITH & SON'S CELEBRATED MUSIC WIRE, Nos. 2 to 30. French Sheet Steel, 3 1-4 in. wide, from 4 to 65 thousandths.

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BINDER TWINE A SPECIALTY. 46 South Street, New York

ZENITH

yet to be met \$150,587.50. of 35 per cent, will be paid as soon as the account is confirmed.

## WEST VIRGINIA.

The Standard Nail and Iron Company, of Clifton, are increasing their plant of nail maghines to 126.

The Georgia Car Company are removing their works from Cartersville to Anniston, Ala., where they will recommence the manufacture of railroad cars.

## OHIO.

Among some of the recent shipments of the Cummer Engine Company, of Cleveland, is a 20 x 42, 287 horse-power engine, to the is a 20 x 42, 287 horse-power engine, to the A. T. Stearns Lumber Company, Neponset, Mass.; a 12 x 24, 89 horse-power, to M. Benner, Chicago, Ill.; a 10 x 20, 55 horse-power, to the Elithorpe Air-Brake Company, Chicago, Ill.; a 10 x 20, 55 horse-power, to E. M. McGillin & Co., Cleveland, Ohio; a 12 x 30, 95 horse-power, to the A. Plamondon Manufacturing Company, Chicago, Ill.; a 13 x 24, 105 horse-power, to the Joshua Hendy Machine Works, San Francisco, Cal.; and an 18 x 36, 215 horse-power, to the and an 18 x 36, 215 horse-power, to the Cypress Lumber Company, Apalachicola, Fla. The Variety Iron Works have just sent in their order for a 16 x 30, 170 horse-power engine, and the Dominion Wadding Comengine, and the Dominion Wadding Company, Sorel, P. Q., have ordered a 14 x 30, 130 horse-power Cummer engine. Mr. W. B. Pierson, manufacturer, of the Cummer Engine Company's Chicago Branch, has just received an order for a 24 x 48, 414 horse-power Cummer engine, from the Paine Lumber Company, Oshkosh, Wis., notwithstanding the fact that all the prominent automatic engines in the market were being pressed upon the Paine people.

The Jefferson Iron Works, at Steubenville, lose over \$2000 through damages caused by the flood.

The employees at the Girard Iron Company's furnace, at Girard, resumed work last week, having accepted a reduction of 10 per cent.

## MISSOURI.

The Moran Bros.' Bolt and Nut Manufacturing Company are about to add a new nut-lock to their list of manufactures.

The Shickle, Harrison & Howard Iron Company are working three pits, and melting about 90 tons of iron a day. When the improvements they now have under way are completed, they will have a capacity to consume daily 250 tons of iron.

The greater part of the buildings of the N. O. Nelson Manufacturing Company, of St. Louis, were destroyed by fire on the morning of February 3. The loss on machinery and stock is estimated at \$100,000, almost all of which is covered by insurance.

The attempt to enforce a reduction in the wages of the stove molders of St. Louis has failed, and all the works which have started up are paying last year's prices

# MICHIGAN.

The Iron River Furnace Company are pre-paring to erect a charcoal blast furnace near Stambaugh. We are not informed as to the size of the furnace.

The United States Steel Plate Company has been organized at Republic for the purpose of making steel from pig iron by a new process, which is described as "an applica-tion of chemicals to iron plates, which changes them at once to the very hardest steel." The capital is stated to be \$1,000,000.

# ILLINOIS

The Columbia Iron Company, of Chicago, have added a new department to their business, wherein will be kept a full stock of flanged heads made by a new process. They are flanged on newly patented machines, whereby, it is stated, a perfect flange with an exact radius is made without boring any hole in the center of the head, and the knuckle is given at the same time extra strength. strength.

The Western Nail Works, Belleville, Genral Powell, manager, started up February
11 with 131 machines, instead of 72, the
number formerly used. Nearly all the
product is nails, and 1000 kegs per day will
be turned out. During the suspension, with
the exception of one week devoted to repairs, they were busy rolling plate.

The Chicago Screw-Driver Works been organized for the manufacture of Craw-ford's patent adjustable screw holder and driver combined. The works have been fitted up with the necessary machinery for the prosecution of the company's business and are in complete running order.

The June Manufacturing Company, of Chicago, have within the last few months added \$10,000 worth of new machinery and are turning out a large amount of special work, most of which requires very accurate

# FOREIGN.

## FRANCE.

PRANCE.

(Moniteur des Interets Materiels.)

Paris, Jan. %, 18%.— Metals.—Business in this city has been dull; Copper and Tin have declined, Lead has been steady and Spelter has advanced. We quote at the close: Copper.—Chill Bars, 145 @ 150; Ingota and Slabs, 155; Best Selected, 160, and Pure Corceoro Ore, 155, Tin.—Banca, 290; Billiton, 220; Straits. 221.25; Australian, 221.25, and English, 220.25. Lead, 29.73 @ 30.50, and spelter. 39.72 @ 40.25. Iron.—The market here has declined to 14.50 @ 15.50 francs with Merchant and Flooring; we quote Charcoal, 34; Sheets. 23 @ 36, and Wire Nails, No. 18, in bulk, 27. At the North the market is quiet; the rolling mills decline making any sales ahead at ruling low figures. Shipments of Pig Iron from the Meurthe and Moseile district have been gradually lessening. Pudding Pig sells well enough, but Foundry do does not. They quote the former 5.80, and the laster, 7.60. In the South, at St. Etienne, the first month of the year has brought no improvement. In the Haute-Marce Coke Merchant sells at 77.50 @ 18; Mixed, 18.50 @ 19; in the North at 16 @ 15.50. In the department of the Eure there exists quite a favorable state of affairs, especially the foundries are inactive, while Structural Iron producers are busy.

# BELGIUN.

(Moniteur Industriel.)

But sents, Jan. 29, 1884.—Iron.—Although we have remained quiet during the week, the outlook is better, and prospects for better times come to us from France. It seems that the railroad companies there that made an arrangement with the

Government last year are legally bound to make a commencement of work without delay, so that the carrying out of M. Freycinet's great project stands better now than it ever did before. This will revive confidence in France in the Iron trade, stimulate a speedy and vigorous revival and we shall feel the effect of it. A month may pass ere this will be fully developed, but even now the feeling is decidedly better among makers and the trade in this country. It is therefore fair to presume that prices have at length touched bottom. For the moment the market is quiet. The blowing out of some blast furnaces in England has strengthened our Pig Iron market. We quote Common Puddling, 5,30 @ 5,40 ; Foundry, 6,75; Luxembourg, 4,60, Merchant, 12 for No. 1; 12,75 No. 2, and 18.50 No. 3, Beams, 12,75; Corners, 13.25; Sheets, No. 2, 16.50; No. 13, 18.50; Commercial, 22,50; Thin, 24.50, and No. 4, 25.50.

# GERMANY.

(Borsenhalle.)

Hamburg, Jan. 30, 1884.—Iron.—The Iron market in Germany has, on the whole, remained dull, both in Pig and Finished, and the aspect would appear gloomy if it were not that the Steel works are so very busy, especially in turning out Steel Rails, the orders for which are unusually large. This activity in Steel manufacture is by some looked upon as a prelude to a good spring trade in Iron, too; hence the feeling is rather more confident than it has been at any time since the commencement of the year. Dusseldorf quotes: Spiegel, 60 marks \$\forall \text{ ton; Prime White Pig. 58; Luxembourg. 37; Foundry No. 1, 69; No. 2, 64; No. 3, 55; Mudela, 76, 87; English No. 3, 56; English Bessemer, 46/6; Spanish, 55 @ 56; German, 55 @ 56; Merchant, 115 @ 140; Sheets, 160 @ 170, and Wire for Wire Nails, 120. Metals have been inactive; Lead is weak at 12.25 @ 12.50 German; Copper is steady at 75.50 Lake Superior; Tin lower, 95 @ 98; Spelter dull at 15.15 @ 15.50. (Borsenhalle.)

## HOLLAND.

(Koch & Vlierboom.)

ROTTERDAM, Jan. 24, 1884.—Tin.—The market has been quiet. We quote Banca from next sale 50.75;
Billiton, spot, wanted at 49.50; afloat, 50.1234 @ 50.25 paid.

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The Old Dominion Steamship Company are now having built, at the yards of Messrs. John Roach & Son, Chester, Pa., a steamer of about 2600 to 2700 tons burden. She will be about 300 feet long and similar in many respects to the Guyandotte. She will be launched this summer and take her place in the line early in the fall.

# Trade

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WYOMING.

Furnace and Hardware Mining.

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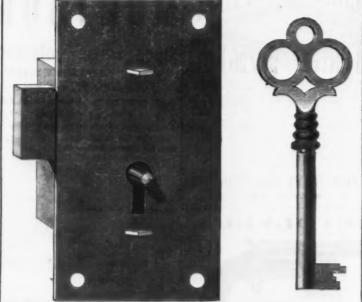
Railroad,

WYOMING of point from handle around below completely fitting closely Strap fitting positively Strap Back Back handle,

98

1

ANDRES -, CUTTERS,



MANUFACTURERS OF THE LARGEST VARIETY OF

MADE BY ANY ONE CONCERN IN THE WORLD.

Hinstrated tatalogue Mailed to the Trade Free upon Application.

# IRON AND STEEL DROP FORCINGS

All shapes, small and large, including GUN, PISTOL, WRENCH BARS, &c. ALSO, DIE SINKING. MANUFACTURERS ALSO OF BRICKLAYERS', MOULDERS' AND PLASTERERS' TOOLS, SADDLERS' ROUND AND HEAD KNIVES.

WILLIAM ROSE & BROS.

36th & Filbert Sts., WEST PHILADELPHIA.

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163 & 165 LAKE ST., CHICAGO,

# Heavy H'dware & R.R. Supplies

"CLIMAX" BARN DOOR Hangers, BARN DOOR Hangers, FOR WOOD TRACK, Moore's Freight Car Door Hangers,

> BAGGAGE CAR DOOR HANGERS,

RAILROAD HANGERS

Parlor Door Hangers.



With the Ratchet Stock pipe can be threaded in a corner, down in wells, or in positions that would be inaccessible with other tools.

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# BEST CHARCOAL PLATES,

AND PLATE IRON GENERALLY.

We ask the special attention of the trade to our C. H. No. 1 Boiler Plates, which we manufacture expressly for the Shells of Steam Bollers and stamp 50,000 pounds T. S. when desired. One hundred and sixteen tests of this iron, made during the last three years by the C. S. Inspectors of Steam Vessels, show an average tensile strength of 58,808 pounds to the sectional square inch, and an average reduction of area of the fractured ction of 30% per centum. Our prices are as low as the production of a good article will admit of . Machine Screw Taps.



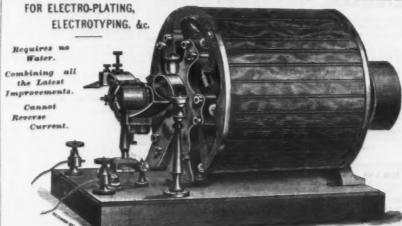
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SEND FOR PRICE LIST.

ummummen's DYNAMO-ELECTRIC MACHINE, THE AMERICAN



THE ZUCKER & LEVETT CHEMICAL CO., Gen'l Agts., Manufacturers and Importers of NICKEL PLATERS SUPPLIES, 540, 542, 544 & 546 West 16th Street, - - NEW YORK.

# Wholesale Hardware Prices, February 13, 1884.

	(For	Wholesale Metal Prices, See Page	25.)	
HARDWARE.	Fast Joint. Narrow	Dividers	Patent Auger, Douglass'	Police Small, \$6.50; Med., \$7.75; Large, \$10.00, dis ros Convex Reflector
A nylis.	Loose Joint. dis focto 5 Loose Joint, Japanned. dis focto 5 Loose Joint, Japanned with acorps. dis focto 5 Parliament Butts. dis focto 5 Navara Library			
	Loose Pin, Acorns	Deer Springs.   Gis op   Gold   Gis op	Zentin Anti-Friction Wood Frack dis 55 Challenge "Medina Mfg. Co. \$15; dis 56 for 5 Victor.	Forcetain Line
Trenton   10%	Fast Joint   Narrow	Gem (Coil): No. 1, Large Japanned	Victor         dis 248 5           Cheritree         dis 50 8           Kidder's         dis 50 8	The "Boss"
Cheney Anvil and Vise,	Fast Joint, Broad         dis 6>&2½ 6           Loose Joint, Broad         dis 6>&7 6           Table Butts, Back Flaps, &c.         dis 6o&2½ 8	Warner's   dis 30 %	Kidder's   dis cole;   Cole	Cotton Chalk. dls 55 8 Silver Lake, Braided, Nos. o. \$6.00; No. 1. \$6.00; No. 2. \$7.00; No. 3, \$7.50 F gross dls 20 \$
Conn. Valley Mfg. Co	1	No. 6, Medium	Architect, ♥ set	Masons' Colored Cottondis 45 %
New Haven Copper Co. die 60 % seecher (French, Swift & Co. die 50 % Griswold. Nobles Mfg. Co.	George Spring and Blank Dutte die oo f	No. 7, Large \$\psi  \text{doz}  \text{2.75}\] No. 7, Large \$\psi  \text{doz}  \text{doz}  \text{3.5}\] Sabin's Boss. No. 1, \$\psi  \text{doz}  \text{4.82.50.dls}  \text{3.55}  \text{3.81.50}  \text{3.82.75}	Harness Snaps. Anchor (f. & S. Mg. Co.). Also for (f. & S. Mg. Co.). Henshaw's, list of 1½ changed to \$14,00.  Judd's, list of 1½ changed to \$14,00.  Stricts (Bristol), list of 1½ change to \$14,00.  dis 6. % Fitch's (Bristol), list of 1½ change to \$14,00.  dis 6. %	
Douglass Mfg. Co. Extra.	Sabin Mfg. Co.'s Double Acting dis 35 % Union Spiral Spring, Japanned dis 25 % Union Spring Hinge Co.'s dis 25 % American Spring Hinge Co.'s dis 3 %	Rubber, complete	Hotchkiss' dis 10 % Andraws' dis 60 % Bargent's dis 20 % 10 % 20 % 2	Cabinet, P. & F. Corbindis Cabinet, A. E. Deitzdis 30 % 40 %
Patent Solid Headdis 30 % Lewis' Patent Single Twistdis 45 %	Gem Spring Hinges   Gis 30	Beroules   Brives   Gls 40	Andrews' dis to \$ 8 Bargent's dis op \$ 8 Bargent's dis op \$ 8 Covert dis op \$ 6 German, old list dis op \$ 6 German, Sargent's new list dis op \$ 6 Covert dis op \$ 6 Covered Spring, new list, Oct. 1882 dis op \$ 6 Covert dis op \$ 6	Cabinet, P. & F. Corbin.   dis   Cabinet, A. E. Deitz.   dis   30#40 \$ Cabinet & A. E. Deitz.   dis   30#40 \$ Cabinet & Stoddard Lock Co.   dis   30 \$ Eagle Trunk, new list, Jan.   1,881   dis   158. \$ Eagle Trunk, new list, Jan.   1,77   dis   408. \$ Cabinet & Crane's List, Jan.   1,77   dis   408. \$ Cabinet & C
Initation Jenning Bits (old list)dis 50 \$	Bommer's	Adjustable Handledis 20 %	Mencely's Fat. Safety (Old German list)dls 50 % Mencely's Imp. German (Old German list)dls 50 % Hatchets.	Round Key, Nos. 5½ to 12.         dis 40% to 8           Flat Key.         dis 33½% to 8           A. E. Deitz, Flat Key.         dis 30% do 3
Snell M. 15. 20 3 Jenninas Bitt (old 1851)	Acme.   dis 5ckr.5	Douglas dis 70 %  Orills and Drill Stocks.  Blacksmiths each, \$2,50, dis 20 %  Blacksmiths each, \$7,50, dis 20 %  Great B & W	######################################	Yale Lock Co., Flat Key
	Blind Butts, Seymour.   dis 70&2 %   Blind Butts, Luli & Porter   dis 75&10 %   Blind Butts, Nicholson   dis 45&10 %   d	Breast Hotchirias	Shingling Non tan Bulos dans di as di as	Plate
Hollow Augers, Prench, switt as 0.  Hollow Augers, Bonney's Adjust, \(\psi\) ds. \(\psi_46\)—dis \(\psi_48\); \(\psi\) to Silon which a djust, \(\psi\) ds. \(\psi_48\)—dis \(\psi_48\); \(\psi\) Hollow Augers, Ives Expansive, each \(\psi\), to—dis \(\psi_48\)—dis \(\psi_48\); \(\psi\) Hollow Augers, Ives Expansive, each \(\psi_4\), to—dis \(\psi_48\); \(\psi\) dis \(\psi\) dis \(\psi_48\); \(\psi\) dis \(\psi_48\); \(\psi\) dis \(\psi\) dis \(\psi\).	Blind Butts, Clark's, Nos. 1, 3, 5,	Breast, Wilson's dis 25 % Breast, Millers Falls each, \$3 co, dis 25 % Breast Bartholomew's each, \$2.50, dis 25 % Batchet, Merrill's each, \$2.50, dis 26 %		Norwich
Hollow Augers, Universal Expan., each \$4, 50—dis 20 \$ Wood's. dis 25 \$ Gimlet Bits. \$7,50 \( \) gross, dis 50 \$ Gimlet Bits. Diamond. \( \) dos. \$1.10, dis 25 &		Ratchet, Merrill's	Shingling Nos 122 W dos 61 to 68 to 68 to	Mallory, Wheeler & Co., 10, 1883. Nimick & Brittan Hard-
Gimlet Bits. Diamond	Billing Butts, Shepard's "Nolseless," Nos. co, co, cs, 45 and 54 and 55.  Blind Butts, Shepard's "Gravity." Nos. 1, 3 and dis 70% to \$  Shepard's Luli & Porter Shutter Hinges. dis 70% to \$  Shepard's Reversible Shutter Hinges. dis 70% to \$  Shepard's Reversible Shutter Hinges. dis 70% to \$  Shepard's Reversible Shutter Hinges. dis 70% to \$  Clark's Improved Shutter Hinge, Nos. o, 1, 1%, 2, 3%, 3.  Butcher's Cleavers.  Humason & Beckley Mfg. Co. dis 25, \$  Bradley's. dis 25, \$  Br	Whitney's Hand Drill, Plain, \$11.00 Adjustable, \$12.00. dis 20% to \$\%\$ Wilson's Drill Stocks. dis 10 \$\%\$ Automatic Boring Tools. each, \$2.25, dis 20 \$\%\$	Claw, Nos. 123.	Whipple Mfg. Co
Double Cut Gimiet Hts, Hartweil's. dis 6 5 Double Cut Gimiet Hts, Dougiase' das 49 5 Double Cut Gimiet Bits, Ives dis 5 5 Norse's Bit Stock Drill. dis 2,5 10 5	Shepard's Reversible Shutter Hingesdis 70%.0 % Clark's Improved Shutter Hinge, Nos. o. 1, 1/6, 2, 3/6, 3	Morse's Reach Patent such 48 on Als on #	Shinging, Nos. 12 3. # doz 7,24 \$8.00 \$8.75 Claw, Nos. 12 3. # doz 7,50 \$8.50 0,35 Lathing, Nos. 12 3. # doz 7,50 \$8.25 0.0 Lating, Solid Steel	Russell & Erwin
Morse's Bit Stock Drilldis 25&10 \$ Holts Bit Stock Drillsdis 25&10 \$ ! Hommedieu's Ship Augersdis 15 \$	Butcher's         Cleavers           Humason & Beckley Mfg. Co.         dis 25 %           Bradley's         dis 25 %           Beatty's         dis 33% %	Morse's Adjustable	Claw, Nos. 12 3 \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Norwich Lock Co) Yale Lock Mfg, Co.'s "Standard"dis 40 % Eagle
Awi Halte.	1 2 3 4 5 6 7 6	Dover   \$\Psi\$ dos. \$\psi_2.2\s, dis 2\struct \text{ diss of stational} \ \psi\$ dos. \$\psi_4.5\struct \text{ diss of stational} \ \psi\$ dos. \$\psi_4.5\struct \text{ diss of stational} \ \psi\$ dos. \$\psi_4.5\struct \text{ for diss of stational} \ \psi\$ gross. \$\psi_4.5\struct \text{ diss of stational} \ \psi_4.5\struct \text{ diss of stational} \ \psi_4.5	Claw, Nos. c i 2 3, 24 doz 8.50 0.00 0.50 Lathing, Nos. c i 2 3, 24 doz 8.00 8.50 0.00 Broad, Nos. i 2 3, 4, 24 doz 0.00 10,00 12.00 14.00 Broad, Nos. 5 6 7 8. 24 doz 16.00 18.00 20.00 22.00 Broad, Nos. 5 6 7 8. 24 doz 16.00 18.00 20.00 22.00	Conestoga dís do 1 seandinavian (Moore Bros.) dís 80 1 J. H. McWilliams dís 104
Patent Sewing, Long	Can Upeners.	Acme. P gross, \$12.00, din 25 f Trumpn (T. & S. Mfg. Co.). # gross, \$12.00, din 25 f Elevator Buckets. # gross, \$11.00, net Mill E. Buckets, light. 3/2 to 10 in. (Duc's Improved).	Collins	" star "dis 45;
Patent Sewling, Long. \$1.00 \( \psi\$ cox. = \text{los} \) \( \psi \) cox. = \text{los} \( \psi \) cox.	Lyman's.	Will E Buckete become	Claw. Nos. 123.	Lustro.—4 os. bottles. # dos. \$1.75 # gross \$1.70 et  Mallets.—Hickory. dis to&10 \$ Lignumvitse. dis to&10 \$ Penfield Block Co. Lignumvitse & Hickory dis 30 \$
Awis, Shouldered Brad. # gross #2.70—dis 246kto % Awis, Handled Brad. #7.50 # gross—dis 256kto % Awis, Handled Scratch. #7.50 # gross—dis 256kto %	Eureka. # dos \$2.50, dis 10 % Sardine Scissors. # dos \$7.00, dis 55 % Star # dos \$5.00, dis 25% 5	** For Emery Paper and Cloth see Sand Paper.  Kettles.	Claw, Nos. 123	Ment Cutters.
Awis, Socket Scratch	Lyman's.	For Emery Paper and Cloth see Sand Paper. Knameled and Tinned Ware. Kettles	### ### ### ##########################	# dos814.00 17.00 19.00 30.00—dis 2585 Miles' ChallengeNos. 1 2 3 # dos822.00 30.00 40.00—dis 40 9
Brad Sets, Stanley's Excelsior, No. 3, \$6,50.	Champion # dos \$2,00, dia 50 \$	Retties		
A xes.—Best grades, single Bit. 4-6 to 54 and under	Hicks & Goldmark's  F. L. Waterproof, r.10's	Door Lock	Gate, N. E. Reversible # doz \$5,75, dia 55,25 Gate, Clark's, Nos. 1 2 3. dia 55,25 Gate, N. Y. State # doz \$5,05, dis 55,25	Miles' Challenge
Brad Sets, Acamiev & Lacersior, No. 5, 50. 7  A xes.—Bost grades. dingre Bit. 45 to 95 and under. \$\psi\$ dox \$82.00 net dingre Bit. 45 to 6 and over. \$\psi\$ dox \$83.00 net dingre Bit. 60 vetled.  Double Bit. 45 to 05 and under. \$\psi\$ dox \$45.00 net frouble Bit. 45 to 05 and under. \$\psi\$ dox \$45.00 net frouble Bit. 45 to 05 and under. \$\psi\$ dox \$45.00 net frouble Bit. 45 to 05 and under. \$\psi\$ dox \$45.00 net frouble Bit. 50 vetled.  \$1.00 \psi\$ dox \$45.00 net dox	Caps—Fercassies, # 1000. Hicks & Goldmark's F. L. Waterproof, 1-10's	Rucets		
	Musket Waterproof, 1-10's.   Sec.   36.   G. D. & S. B.   336, dis 10 \	Star	Rolled Bilnd Hingea. dis 60&10 \$ Rolled Plate. dis 60&10 \$ Rolled Raised dis 60&10 \$	Enterprise
Bain nees. dis 33%4040% Spring Balances. dis 33%4040% Relia. dand Light Brass. dis 70210 %	G. D. & S. B	Ancher Lock	Printe Hinges 8, 10 & 12 in., \$4.50 \$ 100 \$ \ . dis 10 \$ "Providence" \ 0 ver 12 in., \$4.50 \$ 100 \$ \ . dis 10 \$ Screw Hook and \ 8, 10, 12 in., \$7.00 \$ 100 \$ \ . dis 10 \$ Btrap	American
	U. M. C., Double W. Proof	J. Sommer's Cork Lined, 1st qualitydis 50 %	Honor Walded Hank (8 to 12 in., 87.00 # 100 % ) dis	BUTTER DEBING
Gong, Abbe'sdis 206:10 %			Receive Western   Hook   14 in & up, \$5,0 \times 100 \times   10 \times   4 in \times 40 as \$1.50 \times   4 in \times 40 as \$2.45 \times   4 in \times 40 as \$2.45 \times   4 in \times 40 as \$2.45 \times   4 in \times 40 as \$3.60 \times   4 in \times 40 as \$5.00 \times 6.25 \times 6 in \times 40 as \$4.25 \times 6 in \times 60 as \$4.25 \times 60 as \$4.25 \times 60 a	Beef Shavers (Enterprise Mfg. Co.)
Gong, Yankee	Cartridges. RimList of Jan. 1, 1884—dis 50&10 % Central Fire	J & Riler Carr Horse Rasps. dis 103 Butcher's. hoss & Gamble. new list, dis 105	Socket   \$\psi\$ dos \$5.24\$, dis 60 \$\text{Planters}\$   dis 60 \$\text{Social Planters}\$   dis 60 \$\text{Social Planters}\$   dis 60 \$\text{Social Planters}\$	3 biades, \$18 Lothrop's
Crank, Connel's. dis 15210 % Lever, Sargent's. dis 5,2210 % Lever, Taylor's Bronzed or Plated. net	Cotton new list Aug., '83, dis 10 £  Wool new list, Aug., '83, dis 10 £  Carpet Stretchers.	H. Disston & Sons	Handled Planters'	Misiasses tintes  dis 70km   Stebbins Patterns   dis 70km   Stebbins Genuine   dis 67km   dis 67km
Lever, R. & E. M. Co.'s	Cast Steel, Polished# doz \$2.00, dis 30 % Cast Iron, Steel Points# dos \$2.00, dis 50 % ? Socket# dos \$2.50, dis 25 %	Helier Bros. Flies. dis 4ccs 4cc 10 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Bird Cage, Sargent's list	Stebbins Tinned Ends
Pull, Western.         dls 25% 10 5           Call         dls 25 5           Cow, Common Wrought         dls 55% 10 5           Cow, Western.         dls 25% 10 5           Cow, Western.         dls 25% 10 5           Cow, Western.         dls 25% 10 5	Casters - Bed   dis 50 \$   Piate   dis 50 \$   Shallow Socket   dis 50 \$	Firsting Machines.  Knox, 44-inch Rolis	Cotton Patented (N. Y. Mallet & Handle W <sup>1</sup> ks),dis 30 S Cotton (Humason & Beckley Mfg. Co)	Lincoln's Fatteris
Cow, Western, Sargent's new list	Lusket in 1008	Felice Pintes	Weston's. No. 1, \$10.00; No. 2, \$9.00 \$\frac{1}{2}\$ dos. dis 202 to \$\frac{1}{2}\$ McGill's, \$\frac{1}{2}\$.00 \$\frac{1}{2}\$ dos. dis 10 \$\frac{1}{2}\$ Morrill's, \$\frac{1}{2}\$.00 \$\frac{1}{2}\$ dos. dis 50 \$\frac{1}{2}\$	Constant
\$12.00 10.0 9.0 8.00 ".00 5.00 3.50 2.50 5.00)	Fayson's Antifriction   dis 70 x   Cattle Leaders   Humsson, Beckley & Co.'s   dis 70 km c   Sargent's   dis 70 km c   Hotchkiss   dis 25 x   Peck, Stow & W. CO   dis 315 km c   dis 70 km c   dis	American, 5-in., \$1; 6-in., \$3,40; 7-in., \$4,50 each, dia \$5,8 Domestic Fluter Geneva Hand Fluter, White Metal \$4 doz \$12, dia \$5,8	Ciothes Line, Sargent's listdis 5ck10 k Clothes line, Reading listdis 5ck20 k Celiing, Sargent's listdis 5ck10210 k	# B add 9gc to list; 7 10, boxes, and to to list., 95g off Hat Hexagon Nuts
Dellews.	Hotehkiss. dis 25 % Peck, 8tow & W. Co. dis 335 % 10 % Chain.	Coown Hand Fluter, Nos. 1, 815; 2, \$12.50; 3, \$10.00  ¥ dos. 4 dos. 4 dos. 5 do	Grub. \$\psi\$ dos \$\psi\$ net	Washers
Molders' dis 25 % Hand Beliows dis 20 % Beiting, Rubber.	Chain. Trace, 64-10-2. Trace, 64-10-3.  # pair 70c # pair 70c  # pair 70c  # pair 70c  German Halter Chain, list of Dec. 3r. 1881.  dis 55 S  German Coll, list of Dec. 3r. 1881.  dis 55 S	Shepard Hand Fluter. No. 95 per don \$6.50 dis 20 % Clark's Band Fluter \$\psi\$ don \$1.500, dis 33\squares \$5\$ Combined Fluter and Sad Iron \$\psi\$ don \$1.500, dis 20 \$5\$	Wire Coat and Hat, Miles'dis 70 % Picture Hooks, Brown's Pat. Solid Brass, \$4.00 % grossdis 25 %	Turner & Seymour Mfg. Co
Extra dis 60 5 desting and Packing Co. dis Bit Holders.	German Coll, list of Dec. 31, 1881	Fluting Scissors	Wrought Staples and Hooks & Staplesdis 70&74&10 g Wrought Staples. Stapley's list	Navy B 6 640  Ollers.—Zinc and Tin
seiting and Packing Co. dia %  Bit idelers. Extension, Barber's. \$\psi\$ dos \$15.00—dis 40.85 g Extension, Free'' \$\psi\$ dos \$25.00—dis 40.85 g Diagonal. \$\psi\$ dos \$25.00—dis 40.85 g Diagonal. \$\psi\$ dos \$25.00—dis 40.85 g Blind Adjusters. \$\psi\$ dos \$25.00—dis 40.85 g Excelsior. \$\	German Halter Chain, list of Dec. 31, 1881. dis 5, 5 German Coil, list of Dec. 31, 1881. dis 5, 5 English Coil. 3-10 54 5-10 56 7-16 56 American Coil. 3-10 54 5-10 56 7-16 56 American Coil. 3-16 89 5-10 56 7-10 56 Covert Halter. Hitching and Breast dis 5,25 5 Covert Halter Hitching and Breast dis 5,25 5 Hensely 'a Breast Halter and Hitching, dis 6,35 co 7 Oncida Halter Chain (old list). dis 45,5 Galvanized Pump Chain. \$\sqrt{0}\$ 7-75 0 80 Jack Chain, Iron. dis 602 102. \$\sqrt{0}\$ Jack Chain, Brass dis 602 0 et 8 Bod. \$\sqrt{0}\$ gross 500 net Blue. \$\sqrt{0}\$ gross 500 net White Cravons. \$\sqrt{0}\$ gross 500 net White Cravons. \$\sqrt{0}\$ gross 500 net White Cravons. \$\sqrt{0}\$ gross 500 net	Piated, A., Rogers & Bro. die 40&10&55 Plated, Reed & Barton. die 40&10&55 Fruit and Jelly Presses.	Freture Hooks, Brown's ras. Bolid Briass, \$4.00 \$\text{ fig ross}.  dis 25 Tassel and Picture (T. & S. Mfg. Co.). dis 25 Tassel and Picture (T. & S. Mfg. Co.).  Wrought Staples and Hooks & Staples .dis 702/5&10 \$\text{ Wrought Staples. Stanley's list. dis 702/5&10 \$\text{ Wrought Staples. Stanley's list. dis 702/5&10 \$\text{ Wrie Scree Hooks and Eyes. new list dis 704.06c. \$\text{ Grass and Bush.} \tag{ dis 50 \$\text{ Whifferere Patent.} \tag{ dis 50 \$\text{ Hooks and Eyes—Malleable Iron.} \tag{ dis 50 \$\text{ fine Grass} \text{ Hooks and Eyes—Malleable Iron.} \tag{ dis 50 \$\text{ fine Grass} \text{ dis 60 \$\text{ fine Grass} \text{ dis 60 \$\text{ fine Grass} \text{ dis 60 \$\text{ fine Grass} \text{ fine Grass} \text{ dis 60 \$\text{ fine Grass} \text{ fine Grass}	Ollers.—Zinc and Tin dis & oscodi; s Brass and Copper is on a Malleable (Hammer's). Is dos. S.co. dis os Frior's Fatent or "Paragon" Zinc " dis 6c65 &; a Frior's Patent or "Paragon" Brass dis 50 a Olmstead's. Tin and Zinc dis 50 a Olmstead's. Tin and Zinc dis 50 a Groughton's. Zinc dis 50 a Broughton's. Zinc dis 50 a Broughton's. Brass dis 50 a Broughton's. Brass dis 50 a d
Blind Adjusters.—Domestic. V doz \$1.00—dis 30 \$ Excelsior	Oneida Halter Chain (old list)dis 45 % Galvanised Pump Chain W n 75 c net Jack Chain, Irondis ook 108 5 %	Fry Pana. Burnished list as follows	tiorse Nalis.  Nos. 5 5 7 8 9 10  Ausable, # 531c 28c 2(c 25c 24c 25c dis 30&10 \$	Olmstead's, Tin and Zinc
# dos pairs, \$1.00 dis 20210 \$ Yan Band's Gerew Pattern	Chaile.—White. From too het Red. From Stoc net Red. From Stoc net Blue. From Stoc net	Durainaed inst as follows	Clinton, Fig. 4 b 23c 21c 20c 19c 18cdls 30&10 %	Packing Steam.  N.Y. Belting and Packing Co
Merriman's	Chicels.	Wiredis toftto	Putnam " 270 246 220 210 200 190 dia 627 % Vulcan. " 250 292 210 200 190 180 dia 124 5 % Northwestern 250 292 210 200 190 180 dia 124 5 % Giobe, " 240 210 190 180 170 180 dia 124 5 % A. C. " 250 292 210 200 190 180 dia 124 5 % A. C. " 250 292 210 200 100 180 dia 124 5 %	Packing Siesses  N. Y. Belting and Packing Co
Bar bed, % in. and larger 9 9910 net	Chinels, Lines.—See Lines. Chinels. Sockei Framing, Crossman. Sockei Framing, Arlington Edge Tool Co. Socket Framing, Witherby Tool Co. Socket Firmers, Arlington Edge Tool Co. Socket Firmers, Arlington Edge Tool Co. Socket Firmers, Witherby Tool Co. Socket Firmers, Witherby Tool Co.  & 10 \$	Wire Wheeler, Madden & Co dis 10 % dis	A. C "26c 23c 21c 20c 19c 18cdis 10&10 % Ch'mpl'in  Forged "31c 28c 26c 25c 24c 23c dis 30 % New Haven "31c 28c 26c 24c 24c 23c dis 30 %	Dixon's Carpenters'
Bicks. Cleveland Block Co	Socket Firmers, Witherby Tool Co	"Diamond" Gimlets dis solt 5 Double Cut, Shepardson's dis solt 5 Double Cut, Hartwell's dis solt 5 dis solt 5 Solt 5 Double Cut, Hartwell's dis solt 5 Solt	Bridgewater, " 240 210 190 186 170 160dis Saranac, " 260 230 210 200 190 180dis 2, \$ N. w Western 260 230 210 200 190 180dis to	Picture Nalis. Brass Hend, Sargent's Hat. dis og to dis og to
Penfield Block Co., W. L. att steet roll 7	Socket Framing and Firmer, Merrill. dis 6-210 3 Tanged Firmers. Guide 1 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Double Cut, 190a dis ao&to \$ Double Cut, Douglass' dis 40 \$  "Bee" \$20. \$12.00, dis 25 \$  Gine Para.	R. I. Horse Shoe Co., Perkins' Improve. Light, Medium and Heavy. Pkeg \$1.87% Walker's Forged, Light, Med. or Heavy & keg \$1.87%	Porcelain Head, Sørgent's list
Belsa: Cast Iron Barrel. Square, &c	Tanged Firmers. Spear & Jackson's	Tinned and Enameled	Mule shoes.	Pinking Irons. # dox 75c, not Pinking Machines. # dox 810,00, not
Cast Iron Cashi (Sargent 8 189). dia 552 to 5 Ives' Patent Door Bolts. dia 552 to 5 Wrought Barrel. dia 552 to 5 Wrought Square. dia 552 to 5	Iron, Adjustable, Gray's	Sargents Fatents	National Ice Chise    P doz 26,25 dia 20 5     National Ice Chise    P doz 26,25 dia 20 5     Novelty Ice Breakers   P doz 20,25 dia 20 5     White's Silding Head Picks   P doz 22 50 dia 20 5     Novelty Ice Breakers   P doz 22 50 dia 20 5     Novelty Ice Breakers   P doz 22 50 dia 20 5     Novelty Ice Breakers   P doz 25 50 dia 20 5     Novelty Ice Breakers   P doz 26,25 dia 20 5     Novelty Ice Breakers   P	Astor Platting Machine
Wrought Square. dis 5,8210 5 Wrought Square all Iron, Stanley's list. dis 5,6210 5 Wrought Shutter, Brass Knob, Stanley's list. dis 5,6210 5 Wrought Shutter, Brass Knob, Stanley's list. dis 5,6210 5 Wrought Shutter, Sargent's list. dis 5,6210 5 Wrought Shutter, Sargent's list. dis 5,6210 5	Tanged Firmers "Buck Bros (Bhank). 5.25 to 2 (Clamps.  Iron, Providence Tool Co.'s Wrt. Iron. dis 25 5 iron, Adjustable, Gray's. dis 25 5 iron, Adjustable, Lambert's. dis 26 5 iron, Adjustable, Lambert's. dis 26 5 iron, Adjustable, Brow's. dis 26 5 iron, Adjustable, Brow's. dis 26 15 iron, Adjustable, Hammer's. dis 26 15 iron, Adjustable, Hammer's. dis 26 15 iron, Cabuet, Bargent's. dis 26 15 iron. Captington,	Reading Hardware Co.   dis 30&10 %   dis 10 %   dis 1	Globe, " 240 210 19c 18c 17c 18c dis 12% A. C. " 26c 28c 21c 20c 19c 18c dis 108 108 10 8 10 8 10 8 10 8 10 8 10 8	Dixon's Lumber. #gross \$6.75, nat Dixon's Carpenters dis sokto to Picks. Addresses of the Picks. Addre
Wrought Sunk Flush, Sargent'sdis 74&10 % Wrought Sunk Flush, Stanley'sdis soft coft 5 Wrought B. K. Flush. Com'n Stanley'sdis 56 % Carriage and Tire Commondis 84 @ 85&5		U. M. C. P. E., oato	Ice Mallets, Pick in Handle	Falley's (Stanley R. & L. Co.) new list, Jan. 70, dis 20% to \$ The Stanley (S. R. & L. Co.) new list, Jan. 70, dis 20% to \$ Bailey's "Victor" dis 20% to \$ Flane froms. Butcher's \$ \$.00 & \$0.25 to \$
Carriage and Tire, Philadelphia, lew listdis 70£5 \$ R. R. & W. Carriage (old list)	Clips, Axie. dis sçât s superior. dis 75 \$ Cockeyes. dis 55 \$ Racking.	Eley's P. E.   3 col   1 col   3 col   1 col   5 col	Ice Cream Freezers. Ama. Mcb. Co	Plane Irons, Buck Bres. \$5.00 to \$ Plane Irons, Auburn Tool Codis no & to \$ Plane Irons, The Globe Mfg. Co., Baldwin
Tire, Am. Screw Co.'s, Philas, new list. July 2.  1883. dis 7x %  Tire, "Bay State," new list. July 2.  1892. dis 5x %  Tire, "Bay State," new list. July 2.  1893. dis 5x %  Tire, R. B. & W. 3-16 and '4 'hiladelphia list. dis 8x %  161 ro 5.  162 ro 6.  163 ro 7.  164 ro 7.  165 ro 7.	flackingdise	Haltera.—Covert's Pat. Rope dis 50 % Covert's Horse and Cattle Ties dis 50 % Mencely's Pat. Rope and Web dis 50 %	lce Creepers.	Plane Iron, Ohio Tool Co
S-te and % ". dis 70 %  Stove American Screw Co.'s dis 60 %  Stove, R. S. & W dis 50 %	Globe	Meneely's Horse and Cattle Ties dis sok 10 % Hammers.—Maydole's dis 15 % Cheney's, new list. March, 1881 dis sok 5 @ 2027/6 %	Ce Tongs-  Champion   W dos \$6.00 dis 2c&10 \$   Pamily   W dos \$2.75 dis 15 \$	Plane Irons. Sandusav Tool Os
Plow, B. B. & W dis 50 S Machine dis 50 S	Wilson's dia 56 Selson's rat. \$0.50 Age to 50 dia 26 Selson's rat. \$0.50 Age to 50 dia 26 Selson's rate and the selson of the control of the selson of the sellon of the selson of the sellon of the selson of the selson of the selson of the selson of th	Hartford Machinist, Riveting and Farrier dis 25 5 Kip's dis 30 5 Humason & Beckley dis 15 5	Kettles.  Brass, 7 to 17 inches inclusive 2 2 25c net Brass larger than 17 inches	Gas Pilers dis 5 Eureka Pilers and Nippers dis 40 40 40 40 40 40 40 40 40 40 40 40 40
Bor Buds	Webb's Patent. dis 44@50 % Compasses, Dividers, &c Compasses dis 60 % Callpers dis 60 %	Magnetic Tack, Nos. 1, 2, 3, \$1.25, 1.50 and 1.75, dis 25&10 \$	Nichola' Butch, r Vnives	P. S. & W. Caat Steel
Phillips, with Augers	Dividersdis 60 \$ Berris & Call Co.'s Dividersdis 60 \$	Warner & Noble's	Ames' Shoe Knives. dis 15 \$ Ames' Bread Knives. \$\psi\$ dos \$1.5 \$ Ames' Bread Knives. \$\psi\$ dos \$1.5 \$ Moran's Shoe and Bread Knives. dis 20 \$ Hay and Straw, see Hay Knives.	Disston's dis 40 \$ Stanley R. & L. Co.'s Pat. Adjustable dis 5c&to \$ Stanley R. & L. Co.'s Non-Adjustable dis 5c&to \$ Chapin's Patent Adjustable dis 5c&to \$
Baunders' Patent, Extra Hed, \$6.50dis 20 % Hew Pins. Humason, Beckley & Co.'s, Noz. 1 and 2dis 60 % Humason, Beckley & Co.'s other Noz.	Bernis & Call Co.'s Double		K nobs.	Standard Rule Co.'s New Adjustabledis 65&10 %
Sargent & Co.'s	J. Stevens & Co a Caliners and Dividers dis sek of	Floredies Door or Thurst Latence	Bew list, dis 342 2 Door Mineral	Standard Rule Co. 8 Non-Adjustable dis 6x2 10 \$ Johnson's Patent Adjustable dis 6x2 10 \$ Pocks Levels dis 6x3 10 \$ Pocks Levels dis 6x5 10 \$ Post Hole and Tree Augers dis 2x \$ Post Hole Digger & dis 2x \$ Fletcher Post Hole Augers & dos \$37.50, dis 2x \$ Fletcher Post Hole Augers & dos \$30.50, dis 2x \$
Braces — Q. B. Backus	Bradley's   dls 10 @ 20 %     Barton's   dls 20 %     Oarkscrews   dls 20 %     Humsson & Beckly Mfg Co   dls 334 %     Llousch's Pat   dls 334 %	Nos	Door Rineral Door Por. Jap'd Door Por. Jap'd Door Por. Jap'd Door Por Furniture Plain Furniture Plain Furniture Plain Jis gross inch, dis 10 g Furniture Plain Jis catro g Fletture, Jadd's Jis catro g Fletture, Sargeni's His catro g Fletture, Sargeni's Hemcette Jis cotro g	Samson Post Hole Digger # drx \$37.50, dis 20 \$ Fletcher Post Hole Augers # dos \$35.00, dis 20 \$ Vaughan's Post Hole—
Amidon'sdis so \$	Corn Knives and Cutters.—Bradley'sdis to s Wadsworths		Furniture, Wood Screws dis 2c&10 \$ Fleture, Judd's dis 6c&10 \$ Fleture, Sargent's dis 6c&10 \$ Hemselte, Fleture dis 3,5 Shutter, Porcelain dis 6c&10 \$	Vaughan's Post Hole   in. \$25,00 W dos dis 20\$10 S Eureks Diggers W dos \$27,00
Empire	Crew Bara. Cast Steel Ph 6c Iron, Steel Points.  W 2 4/60		Shutter, Porcelain	W GOE #19.00, GHS 20 %
Barker's Imp'd	Curry Combs.  Pilch's dis cotto \$  Hotchkies, Novelty, new list, July 1880. dis 25 \$  detchkies, Excir. Supr. Champion . dis 25 \$  dubber . dos \$10.00, dis 25 \$	Surrace Chees	merting, resume	Dission's Pruning Hoos.
List of June 25, 183	tinbber \$\psi\$ dos \$10.00, dis 24 \$  Curtain Pins net  White Easure!	Hickory Firmer Chisel, assorted, # gross . \$4.50 Hickory Firmer Chisel, large, # gross . \$6.50 Apple Firmer Chisel, large, # gross	Tubular	The state of the s
Ball Rings   Dion Nut Co	Cutlery. Meriden Cutlery Co. (Table)net	Hickory Firmer Chieel, large, # gross	Lanterne   No. 0, \$7.50; No. 1, \$9.00;   No. 1, \$9.00;   Tubulas   With Guards, see extra   net   Nail City   No. 1 & dos \$10; No. 2, \$0, net   Meteor   No. 1, \$2 dos \$10; No. 2, \$5, 50, net   Hurricane, No. 2   dos \$6, 575, net   Peorless, No. 5   \$2 dos \$11,75, dis 10510 \$18 rady's Patient   dis 10520 \$2 dos \$25, \$25, \$25, \$25, \$25, \$25, \$25, \$25,	Brase Screw
Cast Brass Teebout's	Cutlery.  Meriden Cutlery Co. (Table).  Am. Miller Bro.'s Cutlery Co. dis 2; \$  Rumason & Beckley, Pocket. dis 33/5 \$  Naugastuck Cutlery Co. list nec  Laron Burkinshaw's Poeks6. dis 5 \$	Auger, assorted, v gress	Brady's Patent	Jap'd Side. dis ockin 3 Jap'd Clothes Line. dis ockin 3 Jap'd Clothes Line. dis ockin 5 Hay Fork, Solid Eye. \$2.50; Swivel, \$2.50; dis ockin 5 Hay Fork, "Anti-Friction. dis ock 15 Hay Fork, "F" Common and Pat. Susbed. dis ock Hay Fork, Tarbox Pat. Iron. dis ock Bay Fork, Tarbox Pat. Iron. dis ock Sahad Saccis. dis ock Sahad Saccis. dis ock Sahad Saccis.
		3 and 3	10 mm 10 mm	43

(Fo	r
Fast Joint. Narrow	
Loose Joint dis 60&10 8  Loose Joint, Japanned dis 60&10 8  Loose Joint, Japanned with Acoras dis 60&10 9  Parliament Butts. dis 60&10 9  Mayor's Hinges	
Parliament Butts	
Mayer's Hinges. dis code to the code of th	
Fast Joint Narrow	
Loose Joint, Broad. dis 60&236 1 Table Butts. Back Flaps, &c. dis 60&24 5	
Inside Blind, Light dis 60&25% Loose Pin, Wrt. dis 60&75% Is	
Bronzed Wrought Butts dis cox2% s Spring Hinges:	
Sabin Mrg. Co.'s Double Acting. dis 35 % Union Spiral Spring, Japanned. dis 25 %	
American Spring Hinge Co.'s. dis 30 % Gem Spring Hinges. dis 30 %	1
Union Mrg. Co. dis 25 8 Bommer's dis 25 8 Buckman's dis 25 8	
Empire	i
Blind Butts Parker. dis 70&2 % Blind Butts, Palmer. dis 50&10 % Blind Butts, Seymour. dis 70&2 %	
Blind Butts, Lull & Porter	
Blind Butts, Clark's, Nos. 1, 3, 5,	
LOOSE PIR, ACOTRS, Japanned dis 60&10 s LOOSE PIR, ACOTRS, Japanned. Plaved Tips dis 60&20 s Fast Joint Narrow dis 60&20 s Fast Joint Lt. Narrow dis 60&20 s Fast Joint Lt. Narrow dis 60&20 s Fast Joint, Broad dis 60&20 s Loose Joint, Broad dis 60&20 s Inside Blind Regular dis 60&20 s Inside Blind Light dis 60&20 s Loose Pin, Vrt dis 60&20 s Loose Pin, Vrt dis 60&20 s Blind Bluft and Blank Butts dis 60&20 s Sabita Mig. Co. 'a Double Acting dis 60&20 s Sabita Mig. Co. 'a Double Acting dis 60 s Sabita Mig. Co. 'a Double Acting dis 60 s Sabita Mig. Co. 'a Double Acting dis 60 s Sabita Mig. Co. 'a Double Acting dis 60 s Sabita Mig. Co. 'a Double Acting dis 60 s Sabita Mig. Co. 'b Double Acting dis 60 s Sabita Mig. Co. 'a Double Acting dis 60 s Sabita Mig. Co. 'b Couble Acting dis 60 s Sabita Mig. Co dis 60 s Sabita Mig. Sapent's Nos. 1. 3 s Sabita Mig. Sapent's Nos. 1. 3 s Sabita Mig. Sapent's Nos. 1. 3 s Sabita	1
35 and 55	1
Shepard's Reversible Shutter Hingesdis 70%.0 %	1
Butcher's Cleavers. Humason & Beckley Mfg. Codis 25 5	
196 3.   196 2.   20 21.00 2	
Can Openers.—Messenger's Comet, * dos,	
Can Upenera, Messenger's Comet, # dos. \$3.00. dls ack American. # gross \$5.00, dls ack American. # gross \$5.00, dls ack Duplex. # 9 doz ack, dls scas Lyman's # doz ack, dls scas Lyman's # doz ack, ack ack Book, dls ack No. 4, French. # doz ack, dls scas No. 4, Iron Handle. # gross \$0.00, dls ack Stureka. # doz \$7.00, dls ack Sardine Scissors # doz \$7.00, dls ack Sardine Scissors. # doz \$7.00, dls ack Sardine No. 1, \$5.00; No. 2, \$3.25; No. 5, \$2.50.	
No. 4, French	1
Sardine Scissors	
"Worlds Best" \$\Pi\$ gross, No. 1. \$12.00; No. 2, \$24.00 No. 3, \$30.00. \dis to \$\Pi\$ to \$\Pi\$	
"Worlds Best" \$\pi\$ gross, No. 1. \$12.00; No. 2, \$24.00 No. 3, \$20.00 No. 3, \$20.00 Universal \$\pi\$ doa \$5.00, (iis 56 %; 6 Domestic \$\pi\$ doa \$2.00, (iis 56 %; 6 Champion. \$\pi\$ dos \$2.00, (iis 56 %; 6 Cha	1
Champion	E
E. B. Ground Edge, 1-10'8	
Musket Waterproof, 1-10's	0
Eley's D. Waterproof, Central Fire. \$1.50 U. M. C., F. C. trimmed \$50 \{ \text{dis 15&10 \} \}	1
U. M. C., Cen. fire ground	1
Caps—Percussion, # 1000.   Caps—Percussion, # 1000.   Caps—Percussion, # 1000.   Caps—Percussion   C	00000
E. B. 1-10, ground edge	13
Cartridges.   Rim	The Market
Wool	200
Cast Iron, Steel Points. \$\psi\$ dos \$2.00, dis 50 \( \text{Socket} \), \$\text{Socket}\$ & \$\psi\$ dos \$2.50, dis 25 \( \text{Socket} \)	1
Wool	1 1
Deep Socket	111100
Cattle Leaders. dis 70 %  Cattle Leaders. Humason, Beckley & Co.'s. dis 70 & C. S. Sarmert.	100
Taylon's Antifriction	88
Trace, 0%-10-2	800
German Halter Chain, list of Dec. 31, 1881	E
German Halter Chain, list of Dec. 31, 1881. dla 5, 5 German Coll, list of Dec. 31, 1881. dla 5, 5 English Coll. 3-10 45, 516 35, 7-16 56 English Coll. 3-16 45, 516 36, 7-16 56 American Coll. 3-16 896 5-10 36 7-10 36 7-10 36 36 36 36 36 36 36 36 36 36 36 36 36	1
Meneely's Breast, Halter and Hitchingdis socio & Oneida Halter Chain (old list)	E
Mencety's Breast, Halter and Hitching dis color of Oneida Halter Chain (old its). dis 45 s Galvanized Pump Chain W 27 /5c net Jack Chain, Iron dis 60 of 10 s 7 jack Chain, Iron dis 60 of 10 s 7 jack Chain, Brass dis 60 of 10 s 7 jack Chain, Brass dis 60 of 10 s 7 jack Chain, Brass dis 60 of 10 s 7 jack Chain, Brass dis 60 of 10 s 7 jack Chain, W 27000 oc net Eed White Cravons Scounce White Cravons Scounce Chaif & Almes See Lines. W 27000 100 to 10 s 7 jack Si.co. net	25.00
Bed. # gross 8cc net Blue. # gross \$1.00 net White Crayons # gross 20 net	1
Blue \$\psi\$ gross \$1.00 net \$\$ White Crayons. \$\psi\$ gross 10.0 net \$\$ Chalik \$1.0es. \$\$ Socket Framing, Arlington Edge Tool Co. \$\$ Socket Framing, Arlington Edge Tool Co. \$\$ Socket Framing, Witherby Tool Co. \$\$ \$\$ 10.5 \$\$ Socket Framers, Arlington Edge Tool Co. \$\$ 10.5 \$\$ Socket Corner. \$\$ Socket Corner. \$\$ \$\$ 10.5 \$\$ Socket Corner. \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$	000
Socket Framing, Witherby Tool Co	N
Socket Framing and Firmer, Buck Bros 11s 2716 S.	000
Socket Firmers, Witherby Tool Co	100
	F
Iron. Providence Tool Co. 8 Wrt. Iron. dis 25 g fron. Adjustable, Gary's dis 20 s fron. Adjustable, Lambert's. dis 20 s fron. Adjustable, Bambert's. dis 20 s fron. Adjustable, Bamwe's. dis 26 g fron. Adjustable, Hammer's. dis 26 g fron. Adjustable, Hammer's. dis 26 g fron. Cabinet, Bargent's. dis 26 g fron. Cabinet, Bargent's. dis 26 g fron. Cabinet, Bargent's. dis 26 g fron. Engles Hage Co. dis 26 g f f f f f f f f f f f f f f f f f f	S
fron, Adjustable, Hammer's dis 15 g fron, Adjustable, Stearns' dis 20 g fron, Capinet Sargent's dis 20 g fron Capinet Sargent's d fron Capinet Sarge	0000
fron Carriage Makers', Sargent's dis 6-2 rod 10 % from Eberhard Mfg. Co. dis 4-02 from Saw Clambs	U
Clipa, Axie. dis sçês \$ Norway or ileat	DEE
Cilips, Axie.  Cilips, Axie.  Norway or itest.  Superior.  Cackeyes.  Cackeye	B
Plain Bibbs	CM
Board and Box	CH
Solson's rat   Sols	H
Compasses, Dividers, &c. Compasses dis 60 5 Calipers dis 6c 5	AZE
Dividers. dis 60 \$  Bern is & Call Co.'s Dividers. dis 60 \$  Bern s & Call Co.'s Compasses and Calliners. dis 60 \$  Sem s & Call Co.'s Compasses and Calliners.	N
Dividers dis 65 8  Bernia & Cali Co. 'a Dividers dis 65,5 8  Bernia & Cali Co. 'a Compasses and Callipers dis 65,5 8  Bernia & Cali Co. 'a Wing & Inside or outside. dis 65,5 8  Bernis & Cali Co. 'a Double dis 65,5 8  Bernis & Cali Co. 'a Double dis 65,5 8  Bernis & Cali Co. 'a Cali 'a Patent Inside) dis 65,6 8  Bernis & Cali Co. 'a Cali 'a Patent Inside) dis 95,6 8  Cali Co. 'a Cali 'a Patent Inside)	H
Excelsior	P
Bernis & Cair C. 1 (Cair's Fatent Inside) dis 50 % Excelsior dis 50 % Cook's Extension dis 50 % Cook's Extension dis 50 % Cook's Extension dis 50 % Cookers' Teols dis 20 % Cookers' Teols dis 20 % Cookers' Teols dis 20 % Corkscrews dis 20 % Corkscrews	R
Gumason & Bookly Wtv Co. Air sold of	Bi Ji Bi
Clough's Fat. dis 33/2 Cora Knives and Cutters.—Bradley's .dis 15 Wadsworths .dis 25 Corew Barts.  Cast Steel . \$\psi\$ b \$\psi\$	w
Iron, Steel Points # 10 4142	の対し場合
Curry Comba- Pitch's	HE
Curtain Pins. Silvered Glass	H
Cutiery. Meriden Cutlery Co. (Table)	AI BO BO
Humason & Beckley, Pocketdis 23/4 %	A

1	wholesale Metal Prices, See Page	25
	Dividers	P
	Deer Springs   dis 40 %	Bi Ci Zi
	Bee Rodper gross, \$≥0,co, dis 15 % Warner's	St V Cl K U
	No 2, Medium, Japanned # doz 2.75 dls \$6 & 10 \$ No. 2, Small, Japanned # doz 2.00 d far (Coll)—For Cop'd, Nickel-Plated &c., see list. No.4("Shoo Fly") Screen door size, # doz \$1.50	T
	Gem (Coll):  No. 1, Large Japanned	F
	sabin's Boss.No. 1, \( \pi \) dos. \( \\$4.00 \); \( 2 \) \( \\$2.75 \); \( 3, \\$2.dis \( 33\) \) \( \\$3 \) \( \\$3 \) \( \\$5 \) \( \\$5 \) \( \\$6 \) \( \\$7 \) \( \\$7 \), \( \\$6 \) \( \\$7 \), \( \\$6 \) \( \\$7 \), \( \\$6 \) \( \\$7 \), \( \\$6 \) \( \\$7 \), \( \\$6 \) \( \\$7 \), \( \\$6 \) \( \\$7 \), \( \\$6 \) \( \\$7 \), \( \\$7 \), \( \\$6 \) \( \\$7 \), \( \\$7 \), \( \\$6 \) \( \\$7 \), \( \\$	H Ji F
-	Rubber, complete.   \$\pi\$ dos. \$2.5c, dis 20&105     Hercules   Knives   dis 405     Drawing Knives   dis 405     Drawing Knives   dis 405     Prawing Knives   dis 506     Prawing Knives   dis 506     Prawing Knives   dis 506     Horrill   dis 506     Merrill   dis 506     Nobles Mig. Co   dis 15     Bradley   dis 305     Adjustable Handle   dis 205     Witherby Tool Co   dis 705     Witherby Tool Co   dis 705     Prawing Knives   dis 205     Pr	H Ba
	Crossman's No. 1   dis 65&t, 5	G C C M
	Drills and Drill Stocks	Is
	Blacksmiths' each, \$2.50, dls 20 % Blacksmiths' Self-Feeding each, \$7.50, dis 20 % Breast, P. S. & W dis 20 % Breast, Hotchkiss' dls 20 %	н
	Blacksmiths' Self-Feeding   each, \$7.50, dis 20 8 Greast, P. 8. & W   dis 20 8 10 8 Greast, Hotchkiss'   dis 20 8 Greast, Hotchkiss'   dis 20 8 Greast, Bullson's   each, \$3.00 dis 20 8 Greast   Burthelome w's   each, \$3.00 dis 20 8 Greast   Burthelome w's   each, \$3.00 dis 20 8 Greast   Burthelome w's   each, \$3.00 dis 20 8 Greater, Burthelome w's   dis 20 8 Greater, Burthelome w's   dis 20 8 Greater, Burthelome with Burthelome w's   dis 20 8 Greater, Burthelome with Burthelome w's   dis 20 8 Greater, Burthelome w's   dis 20 8 Greater, Burthelome with B	H
	Ratchet, Whitney's dis 20k105 Ratchet, Waltney's dis 20k105 Ratchet, Waton's Triple Action dis 206205 Whitney's Hand Drill, Plain, \$11.00 Adjustable, \$12.00.	Y
	Wilson's Drill Stocksdis to \$	U
	Automatic Boring Tools	L
	Each   Second   Sec	
	Dover   \$\Phi\$ dos. \$2.25, dis 25	C
	Mill E. Buckets, light. 3% to 10 in. (Duc's Improved).  # 100, \$15.0 @ \$51.00	Pe
	Storehouse (Duc's Patent), 12 to 17, \$12 @ \$10 dis 10 \$  Emery.—Regular numbers. # B 8c Flour and F. # B 6/gc For Emery Paper and Cloth see Sand Paper.	A
-	Triumpn (T. & S. Mfg. Co.) # gross, \$11.55, net Elevator Buckets, Mill E. Buckets, light. 3/4 so to in. (Duc's Improved).  # 100, \$15, 500 @ \$4.05.  Mill E. Buckets, heavy 5 to to in. (Duc's Improved),  # dos. \$5, 500 @ \$1.05.  Storehouse (Duc's Patent), 13 to 17, \$12 @ \$30. dis to \$  Emery. Regular numbers.  # Dour and F. # Bernam Bern	W
	Becutcheon         Pins.—Brass         dis 50 %           Eccutcheons	Gi
	Wood dis 25 5  Faucets. dis 40 5  Bohren's Patent Rubber Hall dis 40 5	G
	Wood   dis 25     Faurets   dis 40	Ri Ri Ri
	Star   dis 5,6210 \$	Pi 8c
	J. Sommer's Cork Lined, 1st quality	H
	Cork Lined J. Sommer's Best Block Tin Key dis 50 & 1. Sommer's Cork Lined, 1st quality dis 50 & 50 & 50 & 50 & 50 & 50 & 50 & 50	w
	J & Riley Carr Horse Raps	Pi Se Hi Mi
	New American   dis 4c@4c&10 %   Union File Co   dis 4c@4c&10 %   Heller Bros.' Files   dis 4c@4c&10 %   Western   dis 106840&10 \$	Bi
	J. & Rilley Carr Horse Rasps. — new list April 1, %3, dis 15 5	Co
	Eagle 334-inch Roll.	Be
	American, 5-m., \$1, 5-in., \$3,40; 7-in., \$4,50 each, dis 35 \$7 Domestic Fluter	CI
	Shepard Hand Fluter, No. 85 per doz \$15, dis 40 5 8hepard Hand Fluter, No. 110 per doz \$8.75, dis 30 % Shepard Hand Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95 per doz \$6.50, dis 20 % Clark's Band Fluter, No. 95	Co W W Pi
	Combined Fluter and Sad Iron F doz \$15.00, dis 30 5 Buffalo F dos \$10.00, dis 10 5 Fluting Sciences	Ta W W
	Buffalo.   \$\phi\$ dos \$\tilde{\text{fictor}}\tilde{\text{cos}}\tilde{\text{fictor}}\tilde{\text{fictor}}\tilde{\text{dis}}\tilde{\text{fictor}}\tilde{\text{fictor}}\tilde{\text{dis}}\tilde{\text{fictor}}\tilde{\text{fictor}}\tilde{\text{fictor}}\tilde{\text{fictor}}\tilde{\text{fictor}}\tilde{\text{fictor}}\tilde{\text{fictor}}\tilde{\text{dis}}\tilde{\text{fictor}}\text{fictor	G: W H
	Burnlahed list as follows dis setuctors	A
	₩ dor\$3.00 \$.75 4.25 4.75 \$.25 6.00 7.00 8.00 9.00	Cl Cl Es
	Cauges.   Caug	GI A.
	Wire Wheeler, Madden & Co dis 10 % dis	Ne Br
	Double Cut, Shepardson's	N. R.
-	Bee Pets. Tinned and Enameled dis 3563555 Family, How's "Eureka" dis 45 Family, L. F. & C.'s "Handy" dis 45 Family, L. F. & C.'s "Handy" dis 45 Family, L. F. & C.'s "Handy" dis 45 Family, L. F. & G. & "Handy" dis 45 Family, L. F. & "Handy" dis 45 F	Du
		No No W
	U. M. C. B. E. 9819	Du W Ire
	U. M. C. P. E., 11 up. 3.10 U. M. C. P. E., 9810 4.00 U. M. C. P. E., 9810 4.00 U. M. C. P. E., 788 4.90 Eley's B. E. 3.00 Eley's B. E. 3.00	Ice Co.
	Hack Saws.  Griffin's Hack Saws, completedis 40&10 % Blades only	To Pa
	Covert's Horse and Cattle Ties. dls 50 5 Mencely's Pat. Rope and Web. dis 50 &10 5 Mencely's Horse and Cattle Ties dls 50 &10 5 Mencely's Horse and Cattle Ties dls 50 &10 5 Mencely's Horse and Cattle Ties dls 50 &10 5	Sa Ar
	Eley's P. E.    ack Saws.	K
	Humason & Heckley dis 14 % Verree	Eb
	Nelson Tool Works         dis x & to 5           Warner & Nobles         dis to 5           Yerkes & Flumb         dis po 5           Wilkinson's Bmiths         11%€ ¥ n net           Heavy Hammers and Sledges         dis yoëro 5	An Mo Ha
	Hand Cuffs and Leg Irons. Providence Tool Co., Hand Cuffs, \$15.00 \( \) doz.dis to \( \) Providence Tool Co., Leg Irons, \( \)\$25.00 \( \) dozdis to \( \)	Tal Car Bar
	Tower's	He Do Do
		Pur Fur Pic
	Barn Door   \$\psi\$ dos \$\psi\$, \$\phi_0\$ dis 10.8; 0.5     Wrought Chest	Ple He Shu
	Baw and Piane. dis source flownton's Loop Saw Handles. 50C. dis so \$ Boynton's Contennias Baw Handles 50C. dis so \$	Mei Mei
	Hammer and Basches	Tul Nai
1	Apple Firmer Chisel, large, # gross 6.00	Me

5.)	_
*atent Auger, Douglass	
Tetor   dis 248; 5   Heritree   dis 508   Cidder's   dis 508; 5   Cidder's   dis 508; 5   S   fin, \$12; 5 fin, \$15; dis 508; 5   he "Boss"   dis 508; 5   he "Boss"   dis 508; 5   erry's Patent   fin, \$12; 35 fin, \$10; dis 408   erry's Patent   fin, \$12; 35 fin, \$10; dis 408   erry's Patent   fin, \$12; 35 fin, \$10; dis 408   erry's Patent   fin, \$10; 5, \$14,40; NO. 6, \$18; dis 508	
natures Calps.  nechor (T. & S. Mfg. Co.)	
Otchkiss	-
Shinging, Nos. 12 3, # dos #7,18, #8.00 #8.74 Claw, Nos. 12 3, # dos 7,75 8,0 9,35 Lathing, Nos. 12 3, # dos 7,05 8,00 8,07 Shinging, Nos. 12 3, # dos #7,45 8,00 \$3,75 Claw, Nos. 12 3, # dos #7,45 8,00 \$3,75 Claw, Nos. 2, # dos 7,45 8,35 8,00	-
Immons	
Broad, Nos. 56 7 8. \$\psi\$ dos \$16.00 20.00 22.00 20.00 21.00 20.00 22.00 20.00 21.00 20.00 21.00 20.00 21.00 20.00 21.00 20.00 21.00 20.00 21.00 20.00 21.00 20.00 21.00 20.00 21.0	
Father   F	1
Btrap ( 14 to 30 lB. #5.75 # 100 B )	1
11   Ink   Up \$5.50 & 100 \$ \$ \$ 10 \$ \$ \$ \$ 10 \$ \$ \$ \$ \$ \$ \$ \$	
ird Cage, Sargent's list. dls ooktos fird Cage, Reading dls ooktos fird Cage, Reading dls ooktos otton Patented (N. Y. Mallet & Handle Wiss), dis 50 5 totton Remailer Wiss, dis 50 5 totton (Humason & Heckley Mfg. Co). dis 40 5 elt. dls ooktos elt. dls ooktos ench. Hotenkiss' \$5,00 F dos. dis 10 5 weston's. No. 1, \$1000 No. 3 & 600 F dos. dis 205 weston's. No. 1, \$1000 No. 3 & 600 F dos. dis 205 for the contraction of the contra	State of section 2.
iothes Line, Bargent's list	90 10 10 10 10
asset and Picture (T. & S. Mfg. Co.). dis tof rought Staples and Hooks & Staples. dis rock/\$\delta rought Staples and Hooks & Staples. dis rock/\$\delta rock.\$\delta rock.\$\de	1
	The late to the late of the la
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**alker's Forged, Light, Med. or Heavy ** keg \$5,575* ule Shoes	n AC
tee (Treeners.	ETHPPP P
Ifety Reversible	P BB BGER
rawi larger than 17 luches	HAR DESCOS
ase, Rubber Tipdia 60&10 %	SSIRD SEV
emacite Door Knobs	ELDDD
lting, Monroe's Patent \$\psi\$ dos \$4.00 dis \$0.50 lting. P. S. & W	EPHWD

-	D. N
1	Convex Reflector \$2.7 \times dos. dis 10%
6	Porcelain Lined
2 22 4	Wood
	Duniap's Improved
6	Townsend's Patent
6	The Boss " # doz \$1.00, dis rok to \$
6	Lines Lines Fish
1	Silver Lake, Braided, Nos. o. \$6.00; No. 1, \$6.50; No.
2000	2, \$7,00; No. 3, \$7.50 \$\ gross
2	Police Small, \$0.50; MeC., \$7.75; Large, \$10.00. dis 10% Convex Reflector. \$2.7 \$\forall \text{dos.} \text{dis.} 10% dis. 15% \$1.2 \$\text{mon.} \text{**} \text{dos.} \text{dos.} \text{dos.} \text{dis.} 15% \$1.2 \$\text{mon.} \text{**} \text{dos.}
1	Wire Clothes, Galvanizedeach 250@400 net
-	
	Cabinet, Gaylord
-	Cabinet Stoddard Lock Co
	Eagle Trunk, new fist, Jan. 1, 1881dis 15&2 \$
	Round Key, Nos. 1 to 5
ŝ	Flat Key
	Yale Lock Co., Flat Key
	"Felter" or "American"dis 408:10 %
	F. Many's "Extension Cylinder"\$10.50 F dog not Barnes Mfg. Codls so 5
	Branford DOOR LOCKS, ETC.
	Norwalk
	Norwich
	Mallory, Wheeler & Co., 10, 1883.
	ware Mfg Co
-	Norwich Norwich P. & F. Corbin Dis 6. & 2 \$, cesh, from Revised List of December Mallory, Wheeler & Co. Nimick & Brittan Hard- ware Mfg. Co. Whipple Mfg. Co. Reading Hardware Co. (low list)
	Russell & Erwin Dis 45 & 2 % cash, from Re
5	Wm. Wilcox & Co Vised List of Dec. to 1893.
	Yale Lock Mfg. Co.'s "Standard"dis 40 % Eagle dis 25 %
	Romer'sdis 25@ 40 \$
	scandinavian (Moore Bros.)dis 80 %
2	A. E. Diets
	Fraim & Bro. List of 1883-84dis 55&5
6	Lustro4 oz. bottles. # doz. \$1.75 # gross \$17.00 net
	Reasell & Erwin   PADLOCKS
	Ment Cutters. Dixon's(P.S.&W.)Nos. 1 2 3 4
	Miles Challenge Wilson 17.00 19.00 30.00—dis 25.85
	\$ doz. \$22.00 30.00 40.00-dis 40 9
	Each \$3.00 4.00 5.00 11.00 13.00 30.00—dis 25&5 %
	₩ dos. \$15.00 18.00—dis 25.84 \$
	P dos. \$27.00 33.00 45.00—dis sokioks
	Dixon*e/P.S.&W. Nos.   1   2   3   4   4   6   6   6   6   6   6   6   6
	Nos I 2 3 4 B
	Enterprisedia 25 %
	Each
	Each. \$6.000 75.00 80.00 225.00 400.00—dis 20 American
	Kieser's Butcher
	Nos
	₩ dom
	Mincing Knives.
	Am. (2d quanty), # gross, 1 blades, \$7 3 blades, \$12
	Bmith's, \$\Psi\$ dos, Single, \$2.25; Double, \$3dia 3356 to \$
	Molnages Gates.
	Stebbins Genuinedis 67% 210 1
	## dos. ## dos
	Lincoln's Patterndis ook 10 3
	Boss Nos. 1 2 3 4
	Naile
	Nuts and Washers(In lots less than 1906
	Square Nuts
	Washers
	Nut Crackers. Table (Humason & Beckley Mfg. Co.)
	Turner & Seymour Mfg. Codis 50 %
1	Oaksums.—is on 100 bales and over ½ % ₩ m.           Best.         ₩ m q c           U. SNavy.         ₩ m h q c           Navy.         ₩ m b 6%c
	U. SNavy # h & o Navy # h 6440
	Ollers.—Zinc and Tindis & @6o& § \$
	Malleable (Hammer's) # doz. \$5.00, dis to \$
	Navy
1	Oimstead's, Brass and Copper
1	Broughton's, Brassdia 50 f
1	N. Y. Belting and Packing Codis 20 \$
1	Faber's Round Gilt
1	Packing Steam.  N. Y. Beiting and Packing Co
1	Picks.
J	Adze Eye, 4 to 6. \$12.00; 6 to 7, \$12.00
1	Brass Head, Sargent's list
1	Porcelain Head, Sergent's list dis som of Porcelain Head, Judd's list
1	Porcelain Head, T. & S. Mfg. Codie 3336 %
1	Pinking Irons
1	Magic
1	Crown Plaiting Machines
-	Plance and Plane Irons. Bench, First Qualitydis 20 1
1	Bloom Carpenters' dis 200 con to the control of the
1	Bench, Second Quality. dis 25 Modding. dis 15 Halley's (Stanley R. & L. Co.) new list, Jan. '79, dis 205 to 5 Halley's (Stanley R. & L. Co.) new list, Jan. '70, dis 205 to 5 Has 187 and 187
	Plane Irons, Butcher's
ĺ	Plane Irons, Auburn Tool Co
1	Iron Tone, the Groupe Mig. Co., "Haldwin Iron" dis 20 & 10 \$
	Plane Irons. Sanduszy Tool Osdis 20210 \$
1	Button's Patent
I	s in., \$13.50; No. 4, 7 in., \$21.00 # dosdis 208.10 \$ Humason & Beckley Mfs. Co.
1	Gas Pilers and Nippers dis 55 \$
1	Russell's Parallel, dis 25 % P. S. & W. Cast Steeldis 216 % 10
1	P. B. & W. Tinners' Cutting Nippersadd 6 % dis to 6 Plumbs and Levels.
1	Disaton's
1	Plane Irons. Bandusav Tool Os. dis zekto s Pilner Irons. Bandusav Tool Os. dis zekto s Pilers and Nippers.  dis 33/4 s Hall's Pat. Compound Lever Cutting Nippers, No. 2, 4 in., 813-50; No. 4, 7 in. 821.00 s doss dis zekto s Humason & Beckley Mig. Co. dis zekto s Humason & Hora dis zekto dis zekto s Humason & Hora distable dis zekto s Humason & Levels  Chapin's Non-Adjustable dis zekto s Humason & Hora distable dis zekto s Hora Hora Distable distable dis zekto s Hora Hora Distable distable distable sekto s Hora Hora Distable distable distable s Hora Hora Distable d
1	Chapin's Non-Adjustable
	Standard Rule Co.'s Non-Adjustabledis 5c4 to \$ Johnson's Patent Adjustable
	Davis' Inclinometers
-	Davis' Inclinometers
1	
1	6 in., \$25.00; 7, 8 and 9 in., \$25.00 ¥ dos dis 20&10 \$ Eureka Diggers ¥ dos \$27.00
	Fruing Hooks and Shears.
	# GOE #19.00, dls 20 %
	Dission's Pruning Hook
	Wheeler, M. & Co.'s Combination # dos \$12, dis 20 \$
	Dunlap's Saw and Chisel & des \$0.00 dls 40 \$ Pulleys.—Hot flouse and Tackle, dis 55kto \$

28	
Punches. Belt or Drive # doz \$2.00; 2.25; 4.50, distances	oks 9 Oas
Bett or Drive	office Wi
Spring, Leach's Patent	8 10 5 116 8 10 5 116
Rail Sliding Door, Wrought Brass. F B 350, dis 106 Sliding Door, Bronsed Wrt. Iron F 700 12c, dis 106 Sliding Door Iron, Paluted W 700 4c, 4ds 10 Barn DoorInch	0 20 % (11c) 0 35 . (11c)
Barn DoorInch	o to 9 Hd
Per 100 feet	CRA MELL
J. R. Torrev Razor Co. dis ft asor Strops. Jenuine Emerson. dis	
Badger's (not Emerson)	Hus 120 S R. T 12 S R. T
J. R. Torrey Rasor Co	TO'S ROY
Corey **.	45 % from
Nos 7 8 9 10 11 12 13 14 15 # B. 490 500 520 540 450 450 600 640 700 Rivet Set#	Poli Mgu
Rods. distale, Brase distale Black Walnu	25 5 Le
Rollers. Barn Door, Sargent's list dis 6c%10A Acme Anti-Friction). dis Rose.	55 % Defi From Wood Bail
Manfa List February 1, 1884	Stee
Acme Anti-Friction). dis  Robe. Mnfa' List. Pebruary 1, 1884 dis 1c   Baulia % inch and larger # b   Bisal % inch and larger # b   Chaplin's dis 50 % of 1s 40 % o	Stea Stea Fe Ives
Staal. % inch and larger W b i Biaal. % inch W b i Sisal. % and 5-10 inch F b i	olec Bast
Balles   Roxwood   Iver	y. Solid Brita Reed
Stanley	10 % Holm 55 % Gern Cast
Stephens	net Tin ( net Tin ( net Tin (
Mrs. Pott's Irons, Doubled Pointed dis Mrs. Pott's Irons, Square Backdis Enterprise Star Irons, new list, July 20, 1882dis	35 % Steel 35 % Steel Nick
Combined Fluter and Sad Iron dos \$1.co, dis Chinese Laundry (N. E. Butt Co.) 89c, dis New England	15% Try S 15% Disst Wint
Bacder & Adamson's Flint, or to 1/6\$4.50 F ream Bacder & Adamson's Flint, 2, 3/6 % 3. COF ream Bacder & Adamson's Flint, Assorted. 4/7 F ream ):	Ste Ligh
Baeder & Adamson's Star	Hind Sand
Bartles Best Flint, Nos. 2 to 3. Fream 5.00 Bartles Best Flint, No. 35. Fream 5.00 Columbia Flint, all Nos. Fream 4.00	dis Wash Wash Wash
Madison Mills Filmt, all Nos	Arka Arka Turke
ans. Fortise Star from new list, July 20, 185. dis Control Flute and Sad from W dos 8:10.0, dis Combese Laundry (N. E. Butt Co.). 8:50. dis Stand Faper and Emery Paper. 5:0 dis Sand Paper and Emery Paper. 6:0 dis Sand Paper and Emery Paper. 6:0 dis Sand Paper and Emery Paper. 6:0 dis Sander & Adamson's Flint, 2, 2½ & 2, 5.0 % ream Sacder & Adamson's Flint, 8:0 feet 3.7 % Fream Bacder & Adamson's Flint, 8:0 feet 3.7 % Fream Bacder & Adamson's Emery. Fream 8.0 feet 3.7 % Fream Bacder & Adamson's Emery. Fream 8.0 feet 3.7 % Fream 4.0 hartles Best Flint, Nos. 26 of 1.2 % Fream 5.0 % Frea	Lake Lake Grind
Patent Bigs Silver Lake, Hemp. Bigs Silver Lake, Hemp. B 50c, dis 10& Silver Lake, White Cotton. B 50c, dis 10& 10& 10& 10& 10& 10& 10& 10& 10& 10&	net Ste 5 % Josep 5 % Gem.
Haw Hide, \$\psi\$ foot, \$\frac{1}{2}\$ in., 5c.; 5-16 in., 7c.; \$\frac{1}{2}\$ in., 10c.	5% Gold
Steel Ribbon	Ruby Rising S Dixor
Morris dis 9 Broughton's Burglar Proof dis 33 Walker's 35	sma
Hammond's Window Springs. No. 1, \$10,00 P gross.dis 1 Common Sense," Japanned, Coppered and	Tinne Tinne et Swede
Steel Ribbon. dia 2 Snah Lecks. Clark's, No 1, \$10.00; No 2, \$8.00 per gross. dia 23 Ferguson's dia 33 Worts. dia 53 Worts. dia 53 Worts. dis 53 Worthup Window Springs. No 1, \$10.00 F gross, dis 7 Northup Window Springs. No 1, \$10.00 F gross, dis 7 Common Sense, Japanned, Coppered and Bronzed Common Sense, Nickel Plated. F gross \$10.00 Universal dis 56 Kempahall's Gravity dis 56 Kempahall's Gravi	et Ameri Coppe Swede
Kempshall's Modeldis so⁣ Payson's Perfect	Gimp Gimp Finish
saan Locks, new list, rett., 1864	ct Baskel Brush
Kempshall's Model	g Cigar
Enterprise Mrg. Co	5 Double Tap Comm Ives' T
Disston's Hand, Panel, Rip, &c dis 20 Boynton's Lightning Cross Cuts, new list dis 40 Boynton's Circular and Mill dis 40	Enterp
Boynton's Ice Boynton's Lightning Hand, Panel and Hip. dis 25 Wheeler & Clemson Mfg. Co.'s Hand ais 30	America Spring Cheste
Livingston's Butcher and Kitchen dis 20 Livingston's Framed Wood— Nos 101 102 103 104 105	Their Tin Car
Per dos.         \$10.00         \$.90         \$10.00         2,50         \$20 net           Peace Circular and Mill	Enterp Wood I
Peace Band Saws, all widths. dis 10 Richardson's Cit cular dis 40 Richardson's Mil and X Cut. dis 40	Nashus Wilson Clipper Acme
Stilver's dis 49 Silver's dis 49 Silver's dis 40 Disson's Circular, Mill and Cross Cuts. dis 40 Disson's Enand, Panel, Rip, &c. dis 20 Boynton's Lightning Cross Cuts, new list. dis 40 Boynton's Circular and Mill. dis 40 Boynton's Circular and Mill. dis 40 Boynton's Ightning Hand, Panel and Rip. dis 25 Wheeler & Clemson Mfg. Co. 8 Hand. dis 25 Wheeler & Clemson Mfg. Co. 8 Hand. dis 30 W. M. & C. Mfg. Co. Cross Cuts. dis 30 Livington's Butcher and Kitchen. dis 20 Livington's Framed Wood— Nos. dis 20 Livington's Framed Wood— Nos. dis 20 Feer Go. dis 20 Fees Coros Cuts. dis 35 Feece Band, Panel and Rip. dis 35 Feece Band Baws, all widths dis 10 Richardson's Circular dis 40 Richardson's Mill and X Cut. dis 40 Richardson's Mill and Yanel, Butcher and Web Saws. Whita, Vermont. # dos \$1.50, dis 26 Saw Framses. Whita, Vermont. # dos \$1.50, dis 26 Saw Framses. Whita, Vermont. # dos \$1.50, dis 26 Saw Framses. # dos \$1.50, dis 26 Saw Holls. # dis 26 Saw Framses. # dos \$1.50, dis 26 Saw Framses. # dos \$2.50, dis 26 Saw Framses. # dos \$2.50	Tee C
Red, Polished and Varnished ¥ dox \$1.50, dis 10 Baw Rods \$10 list, dis10 & 10	Tinn Machin Tools (I
Soynton's Patent X Cut, per dos, \$12.00; Hand Saw per dos, \$10.00. dis 2,5 stillman's Jenuine. # dos \$3,50 and \$5,50 dis 10	Wollens Reiher. Excelsion
Stillman'   mitation	Trap Game. Game, Game,
Hammer, Hotohkiss	Game, i Mouse, Mouse, Mouse C
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# dos, 4 in., \$5.00 ; 5 in., \$10.20 ; 6 in., \$12.00—dis 35 \$ # allest & Co.'s Double Action Clutch # dos, 4 in., \$7.00 ; 5 in., \$6.00 ; 6 in., \$9.00—dis 15 \$	Richards
# dos. 4 in. #9.00; 5 in. #10.20; 6 in. #12.00—dis 15 st Asilett & Co. *B Double Action Clutch     **Budos & Action     **Budos & Actio	Wash Smit Johnson' Penny's.
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Farallel, Sampson S Aujustane   Unit System	*****
Washer Cutters. # dos \$12.00 dis 25 Ohnson's # dos F1.50, dis 315 2enny's # dos F0. \$17.40; Jap'd, \$15.50, dis 315 ppleton's # dos \$16.00, dis 50&10 Washers.—See Nuts and Washers.	XXXX
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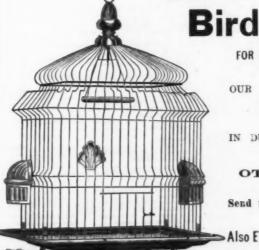
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	Paul Chas. B., Williamsburgh N. Y	Hubbard Chas., 46 Cliff, N. Y.  Judson B. F., 457 and 459 Water, N. Y.  Keeley Jerome & Co., Philadelphia, Pa.
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	Malleson F., Brooklyn, E. D., N. Y	Iron. Pig. Importers of. Abbott Jere & Co. Swedish, New York & Boston., 3 irier Hill Iron and Coal Co., Youngstown, Ohio., 3 Hubbari, Chas., 46 Cliff, N Y Lee annes & Co., 72 Pine. N. Y Lundberg Pustaf, Boston. M-ss
	Forges. Portable. &c. Buckeye Forge Co., Cleveland, 0	Lee James & Co., 72 Pine, N. Y
	Forges. Pertable. &c.   Buckeye Forge Co., Cleveland, O   12	
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	McDermott & Borea Stone Co., Cleveland, O. 32 Ohio Grindstone Co., Cleveland, O. 32 Wood Water R., 38; and 28; Front N. Y. 32 Worthington & Sons, Cleveland, O. 32 Worthington & Sons, Cleveland, O. 32 Glunpowder, Maker af,	Smith & Egge Mfg. Co., Bridgport, Conn
	Gunpowder. Makers of. Lafiln & Rand Powder Co. 29 Murray, N. Y	Yale & Towne Mfg. Co., Stamford Conn
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ent Soileltors.   Sean J. V. St. St. St. St. St. St. St. St. St. St	Steel Manufacturers. Albany & Rensselaer Iron & Steel Co., Troy, N, Y, 96 Anderson, Du Puy & Co., Pittsburgh, Pa., 96 Burrows Thos. C., 90-101 John, N, Y, 66 Chrome Steel Works, Brooklyn, N, Y, 36 Cleveland Rolling Mill Co., Cleveland, O, 36 Gautler Steel Department of Cambria Iron Co. Lobastown, Pa.
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terbrook Steel Pen Co., 26 John, N. Y	Gautier Steel Department of Cambria iron Co- Johnstown, Pa. 48.36 Grove, Grier & Co. Philadelphia, Pa. 68.36 Hartman Steel Co., Beaver Falls, Pa. 68.36 Jessop, Wm. & Sons, Sheffield, Eng., 94 John, N. 7.36 Mildvale Steel Co., Nicetown, Phila., Pa. 68.36 Miller, Metcalf & Parkin, Pittsburgh. 30 Moss F. W. 80 John, N. 7. 35 Pennsylvania Steel Co., 26 S., 16h, Phila. 93 Pennsylvania Steel Co., 26 S., 16h, Phila. 93 Rowland Wm. & Harvey, Frankford, Phila. 48 Shoenberger & Co., Pittsburgh, Pa. 48 Shinger, Stimick & Co., Pittsburgh, Pa. 30 Singer, Stimick & Co., Pittsburgh, Pa. 30 Singer, Stimick & Co., Pittsburgh, Pa. 30 Singer, Stimick & Co., Pittsburgh, Pa. 30
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e Cutters.	Vought & Williams, 266 Greenwich, N. Y
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ollert Foundry and Machine Co., Limited, Reading, Pa.  ng, Pa.  ng, Pa.  ng, Pa.  nood R. D. & Co., 100 Chestnut, Philadelphia.  food R. D. & Co., 100 Chestnut, Philadelphia.  syckoff A. Elmira. N. Y	Steel, Tool.—Brown & Co., Pittsburgh, Pa
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ast, Foos & Co., Springfield, O	Penfield Block Co., Lockport, N. Y
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ake Crusher Co New Haven, Conn	Washing Machines.
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own. N. Y. 49 w (Harnes). Lite Chas. E., 50 Fulton. N. Y. 10 W Sets Farr Ass. 54 College Place, N. Y. 14 Hes. Monufacturers of. 75 Lo Societica. N. W. 14 Tale Societica. N. W. 15 N. Y. 15 Tale Societica. N. W. 16 N. Y. 16 N. Y. 17 N. Societica. N. W. 18	Cieveniala with works.  Wire, Amsufacturers of American Wire Co., Cloveland, Ohio.  Cambria Iron Co., Johnstown, Pa.  Cary & Moen, 23 W. 28th. S. T.  Gautier Skeel Department of Cambria Iron Co., 3  Gautier Skeel Department of Cambria Iron Co., 3
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Registration   Regi	Leschen A. & Son, St. Louis, Mo
llers Wm. & Co., Phila., and 79 Liberty, N. V43 alker Mfg. Co., Cleveland, O	Leschen A. & Son, St. Louis, Mo. 3 Wire Stretchers, Samson Novelty Works, DeKaib, III. 6 Wood-Working Machinery. L. M. Rumsey Mfg. Co., St. Louis, Mo. 40 Smith, H. B., Mach. Co., Phila. Ph. 41 Wreaches, Manufacturers of, Bemis & Cail Heiw, & Tool Co., Springfield, Muss 91&34 Coes A. G. & Co., Worcester Mass. 10 Coes L. & Co., Worcester Mass. 25 Lowenthal, P., Newark, N. J. 35
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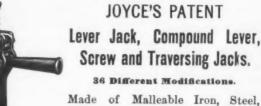
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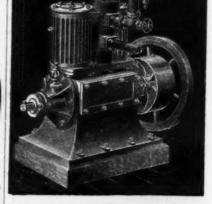
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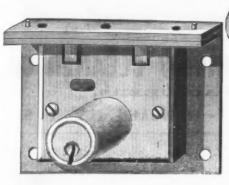
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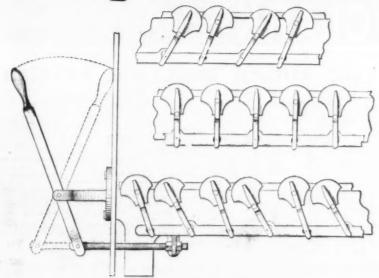


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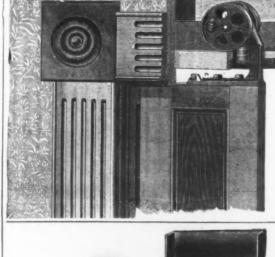
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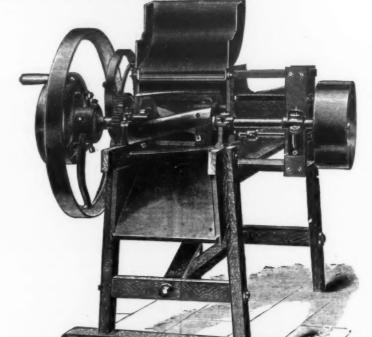
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STAPLE

## VALUE OF IRON ORES OF DIFFERENT CHEMICAL ANALYSES

In the tables prepared by Mr. John M. Hartman, and published in the Bulletin on December 5, 1883, on the value of iron ores at the blast furnace, the basis is taken with a production of 500 tons of pig iron per week from one furnace using 40 per cent, ores containing 30 per cent. of silica, and allowing the ores to have 20 hours' exposure in the furnace. The plant would cost about \$250,000. The table below, taken from a recent issue of the Bulletin, shows the results that would be obtained by using richer ores:

lage Ores.							Pe	ercent	age o	f Sili	ca.						
of	15	2	%	4 %	6%	8 %	10%	12 %	14%	16%	18%	20 %	22 %	24 %	26%	28 %	30 9
Perc		Tons of Iron Produced per Week.															
40		**   * *				* * * * *	* * ×	820	784	749	713	677	641	606	570	535	500
42								834	798	762	726	690	653	616	580	541	
44							910	868	827	785	743	701	659	618	577		
46							920	877	834	791	748	705	662	619			
48						1,000	960	911	862	813	764	715	666				
50						1,023	972	921	870	819	768	718					
52						1,034	982	929	876	820	770						
54					1,119	1,060	1,000	940	882	822				!			
56					1,128	1,068	1,020	950									
58				1,208	1,137	1,076	1,030										
60				1,211	1,144	1,084	1,039										
62				1,215	1,150	1,092											
64			!	1,220	1,157												
66			1	1,226	1,164												
58		. 1,3	23	1,231													
70	1,37	5 1,3	26														

## Tariff Imperfections.

The Ways and Means Committee recently The Ways and Means Committee recently adopted a resolution requesting the Secretary of the Treasury to make such suggestions as he may deem necessary in order to improve the administering of the Customs Department, and to furnish such facts in regard thereto as the committee ought to have in order to perfect suitable amendments to existing laws, looking to their better adminis-tration. In accordance to this request the Secretary, on the 11th inst., addressed a letter to Mr. Morrison, chairman of the committee, in which he sets forth at length numerous imperfections in the existing tariff which have given rise to considerable controversy. Those portions of the Secretary's letter which in any way refer to metals or

hardware are given below:
Two prominent points have arisen which
involve matters of administration. First, involve matters of administration. First, as to the order in which the various provisions of Section 2499, Revised Statutes, as amended by that act, shall be applied. It has been decided to apply them in the order in which they stand in the statute, as will be seen by the inclosed copy of letter to the Collector of Customs at New York, dated the 12th ult. It is contended, however, by some of the customs officers, that if an article made of a material which is named in one of the residuary clauses, as, for instance, one of the residuary clauses, as, for instance, a manufacture of iron, and not specified in the tariff by its trade name, it is an enumerated article, and hence the first clause in merated article, and hence the first clause in said Section 2499 cannot be applied to subject it to any other rate of duty than that appropriate to the materials of which it is made. The rule adopted is believed to be a proper construction of the law, but it may lead to litigation, and it would be well, if occasion should arise, for Congress to declare how the order in which the various parts of said Section 2499 shall be applied.

The second point of controversy has been the correct meaning of Section 7 of said act. A vast number of appeals from the assessments of duty made by collectors of customs have been filed in this department, growing out of disputes as to the meaning of said section. It is contended by importers and

virtue of said section, duties were chargeable only on the value of the naked merchandise itself, without reference to any items of expense for placing the merchandise in a marketable condition. Thus, for instance, that shoeblacking which is held for sale in small tin boxes, and matches which are commonly put up for sale in small wooden or paper to the same character might be cited. The inclosed copies of circulars of this depart.

Strong as cast wheel iron, and machinery steel containing about .30 per cent. of carbon aboves from Swedish iron, with .70 to .80 per cent. of carbon added, hammered and rolled, will produce a perfectly safe and durable tire.

A deplorable accident, resulting in the death of James McBride, of this city, inclosed copies of circulars of this depart-ment, reports of a commission of customs officers appointed to consider the matter, the members of which, it will be seen, did not agree, and an opinion of the Attorney-General of the 11th ult., will show the various stages of the discussion. The Attorney-General's opinion takes the ground that the value of goods subject to a duty ad valorem is to be taken in the usual merchantable condition of the article as expressed for sale condition of the article as exposed for sale in the foreign country, and that the intent of said Section 7 was to remove only the duties on the items or expense or value which are incidental to the putting-up, packwhich are incidental to the putting-up, packing, transportation for shipment, and any other charges which by Section 2907, Revised Statutes, were added to the foreign market value of the goods to make dutiable value. This opinion has been concurred in by this department, but its enforcement is likely to increase rather than diminish the number of protects from importers who will

of the law. At first a difficulty was experienced in construing some of the provisions of Schedule C relating to metals. Paragraph 150 imposes on round iron in coils or rods, less than  $\frac{7}{16}$  cent per pound. Paragraph 180 imposes on the same class of metals, when valued at  $3\frac{1}{2}$  cent or less per pound,  $\frac{6}{10}$  cent per pound, when within the denomination of rivet, screw, nail or fence wire rods in coils or loops. The class of iron mentioned in 150 is generally available for mentioned in 150 is generally available for the purposes mentioned in 180, and the de-chinery.

partment has held that when of the size and value specified in 180 it is to be classified for duty thereunder, without any reference to the use to which the merchandise is ultimately applied. This is not stated as a difficulty in administration, but only to explain the posi-

182. This clause regulates the duty on iron and steel wire of certain dimensions, but makes no provision for wire larger than No. 5 wire guage Wire of that size is therefore remanded to the classification of articles

fore remanded to the classification of articles of iron or steel not enumerated, dutiable at 45 per cent., which rate is not in harmony with the duty on the specified sizes of wire. Paragraph 186 imposes a duty of 35 per cent. en all manufactures of copper, or of which copper shall be a component material of chief value, while 216 puts a duty of 45 per cent. on manufactures, articles or wares not specially enumerated or provided for, composed wholly or in part of copper. The ruling of the department in an endeavor to give force to both of these provisions will be found in Decision 5899.

The Service of Car-Wheels.-The follow ing facts concerning the relative durability of steel-tired and cast-iron car-wheels are taken from a paper read by Mr. John M. Ford at a meeting of the Master Car-Builders' Club, held at Boston, January 30, and are based on statistics from the passenger-coach service of the Boston and Albany Railroad for the past year: During the year 1883, 180 Hartford steel-tired wheels had been removed as worn steel-tired wheels had been removed as worn out. Their average mileage was 245,980 miles, the minimum being 63,500 and the maximum 470,000 miles; the average time in service, 7 years, 8 months, 3 days. Out of 180 wheels worn out, the great majority, 131, ran over 200,000 miles, and only about 3 per cent. of the total number ran under 100,000 miles. The average mileage of worn-out cast-iron wheels, removed during 1882 was 29,074 miles, and it would therefore appear that a steel-tired wheel will outlast eight chilled wheels, which latter only ran, on an average, 332 days. Speaking of ran, on an average, 332 days. Speaking of the best material for tires, Mr. Ford said section. It is contended by importers and by some of the customs officers that, by virtue of said section, duties were chargeable strong as cast wheel iron, and machinery

A deplorable accident, resulting in the death of James McBride, of this city, occurred a short time since in the engineroom containing the machinery which propels the Brooklyn Bridge cars. The flywheel of the driving engine, making some 56 revolutions per minute, runs through a cut in the pine flooring of the room and almost touches the brick ceiling. McBride, one of the two "wipers" employed, was cleaning the brass guard around this opencleaning the brass guard around this open ing, when, in some way not yet explained he was caught by the wheel and immediately drawn through the cut. The man was prob-ably killed almost instantly, and his remains were found mangled in a horrible manner.

The foundry of Rouelle, in France, which furnishes the Government with large cannon, is at present making some very heavy guns for the French navy and for coast defense. by this department, but its enforcement is likely to increase rather than diminish the number of protests from importers, who will seek to enforce in the courts their own views of the law.

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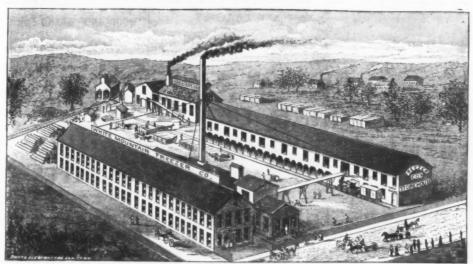
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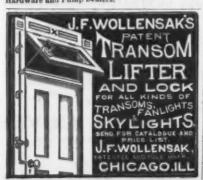
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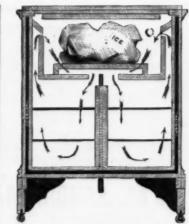


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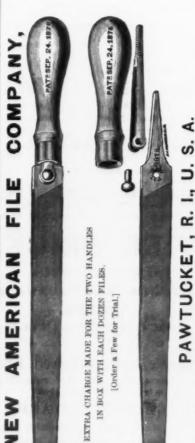
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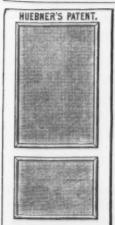
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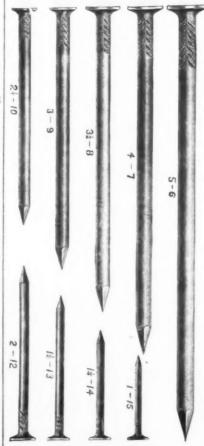
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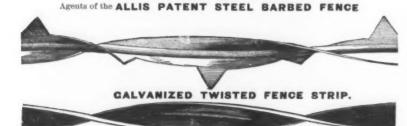
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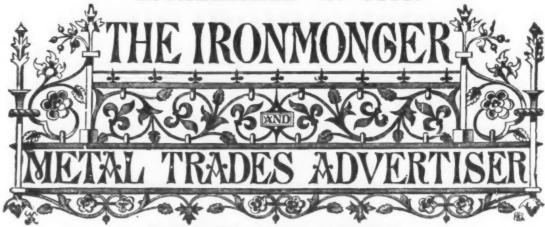
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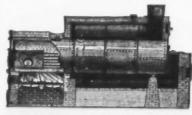
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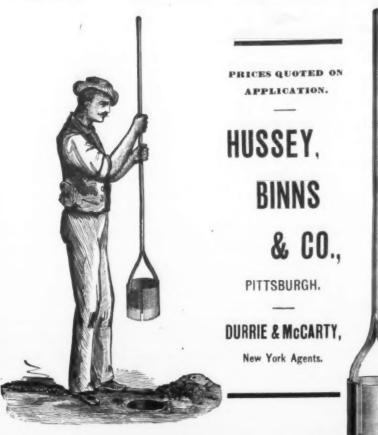
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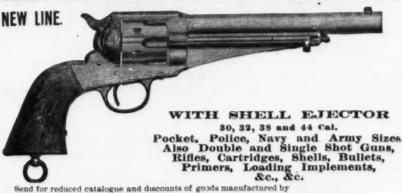
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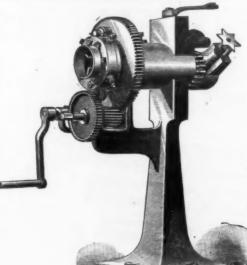
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1	Fluting Machines. Eagle—3/6 in. rolleach, \$2.15 } dia or \$
	-56 in. roll. 2.55 \$ 3.50 }
	Payorite com Fluter & Sad Iron & dos \$10 to not
1	Hammers. Terkes & Plumb's, new list
1	Howell A. E. Nali Hammers,per dos. net \$5.75 Handles. Disston Loop Handles Crosscut33c pair net Boynton Loop Handles Crosscut33c pair net Hatchets.
1	Boynton Loop Handles Crosscut. 33c pair net Hatchets. Yerkes & Plumb, new list
1	Huntdis 25 5 Hinges. Strap and Tdisbokrok2 5
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,	lay and Straw Knives
1	Waldsworth
	Walton Straw Knives.   17.00   10cts and H nebs.   17.00   10cts and H nebs.   18.00
	Scandinavian Padlocks
1	# dos
	No. 64 64 66 dis 68 Largeris Large list net; small list net. Tubular. No. 6, \$7.50; No. 1, \$9.50 \tilde{\pi} dos net. awn Mewers. Pennsylvanis.
	Philadelphia hew has
1	Holland Patent List &co die ro
4	finitocks.  Long and Short Cutter
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German Silver. dis 30% to&t % Britannia, Boardman's dis 50% to % Parker's dis 60% to %	36 to 1-16 34 a
Paren	7-32 3-16 5-32
" No. 2 medium Jap'd. 2.75 dis 50 & 10 \$ Coll No. 'o. per gross nes \$6,00 Other Standard Springs	Oil
Warner Door Springs, per dos. net	
Single No. 0, per dos. net 1.35 " No. 1 1.50 Other Standard Spring Hinges dis 25&10 5	Ord ke
Stocks and Oles. dis 10&5 5 Stove Polish.—Gem. # gross. \$1.50, dis 5 5 Dlxon. 6.00, dis 105	14 a 7-32
Other Standard Spring Hinges dis 2.26 10 5 Stocks and Ules dis 10.5 5 Stocks and Ules dis 10.5 5 Stock Pelish — Gem. Fgross \$1.50 dis 5.5 Dixon. \$0.0 dis 10.5 Fire Fly \$3.00 kross net Tracks. \$3.00	3-10 Sc lint.
" 3½-8, and under 9c	Cru
Genuine Oneida—Newhouse	Ope
Vises.—Solid Box. Trenton new list	To:
Wire. Mail. Bar	Aug
	Fro
Tinned Broom Wire dis 57%66 & Galvanized Barb Wire 746	Pic
Galvanized No. 7 to 18 Market List dis 47 m @ 50 t Wringers, Peerless No. 244	Tab Tab Pik
Walvanized No. 7 to 18 Market List dis 47 m @s.o 6         Wringers,       81 t.oo         Poer less No. 2 ½       81 t.oo         No. 2       42 t.oo         No. 2       42 t.oo         No 2 t.oo       45 t.oo         No 2 t.oo       45 t.oo         No 2 t.oo       45 t.oo         Novelty No. 2, for common tube.       42 t.oo	Coa Rol Spir
No. 2. for common tubs. 45.00  Novelty No. 2, for common tubs. 42.00  Excelsior E, for stationary tubs, 51.00  In loss of 1 dor 85.00 dor dis from the common tubs. 47.00	For Pist
In lots of 1 dos. \$6.00 dos. dis. from above prices.	6114
PITTSBURGH.	Bot
Merchant Iron. TERMS.—Note or acceptance at 50 days, with current rate of exchange on New York, or a discount of 2 percent, for cash, if remitted within 10 days from date of	Boi th
	8me
For fluctuations and discounts on card rates see weekly Pitts-	
burgh Trade Report. The following are card rates. Flat Bar.	30111
1% to 4 by % to 1 inch	Spli
134 and 134 by 34 to 34 " 2.6c 1 and 134 by 34 to 34 " 2.7c 4. 44 and 34 by 34 to 44 Inch 2.7c	IX3- IX3-
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4-6     1, and 1½, No. 21       5-10     1, and 1½, No. 22       5-10     1, and 1½, No. 22       5-10     1, and 1½, No. 22       5-10     1, and 1½       5-10     1, and 1½ <td>Strie B P</td>	Strie B P
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16, Nos. 19 and 20	54 60
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" No. 22	25 39 48
1-roc per lb. extra will be charged for each gauge	5.4 60
o specified lengths.  Barrel Hoops	70 80 84 90
to 11 lbs, per set of 6 hoops	94 Ico
Extras for Cutting to Length all Preceding Iron. All Iron, including Tire	Size:
In a and heavier	inch
Sheet Iron. Common. Charcoal. Juniata.	Axe
io 18 to 21	56 56
To 25 ft 26 6 6 6 7.38	Brai Hoe
All shee.s No. 18 and lighter, over 30 inches wide, ot less than 2.100 extra.	Han
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if by \$6 by 4-18s.oc   I by \$6 by 4-18	Show Spad Scoo
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TRail.   18   18   18   18   18   18   18   1	bein
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orway orway orway or 16x 54x 54 and 54x 54x 54 45c	fron
rag Bars 3.40 ropper Bars 5.40 pinder and Landaide Iron 5.50 pw Beam Iron 6.50	7

1	HEIRO	N		A (	3 E
N. W.	See Pittsburgh Trade Repor	B. 1			
8 8	See Pittsburgh Trade Report Best Quality Refin Regardity Refin Square, Flat, Octage 1-16 and 2% to 3 inches 4 and 3% to 4 7-32 and 4% to 5 3-16 and 5% to 6 5-32 inch.	ned Ci	Row	tool. id.	old a
M M M	1-16 and 21/4 to 3 inches			** ****	10/46
××	3-16 and 5½ to 6 " 5-32 inch			*** ***	.1434C
900	oil Well Steel Forgings  Machinery				300
75	Continue Con	rucible		Bessen pen H	earth
40 W	Ordinary Sizes % to 2 inch kound 16 and 2½ to 3 inches 4 and 3½ to 6 732 inch 5.0 8.0	40 60		31	€C €C
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et %	Hos and a rest merch Octoboth' 26	IC GTEL	a hre	ough t	it the
8	Cut to specified lengths, 160 Hammer Cas Crucible Cast Steel.	t Steel			00
200	Crucible Cast Steel  Open Hearth Cast Steel  Sheet Steel  Best. 2d Qual.	ruelb	ie.	Leura m	50 or #
8	Bost. 2d Qual. To 21 gauge	ad Qu	al. O	pen He	earth.
×	Cut to multiples or specified Misceuaneous C	lengt	hs, 160	3. extr	a.
9 9 9	Auger and Auger Bit.  Axle Steel for carriages and w Frog Points and Plates  "Side Bars	agons			50 50
% W. C	" Side Bars Pick, plain (hammered) and Mattock, beyeled (p	olledi			6e
C	Table Cutlery plain	******	******	******	. 6c
00	Pick. Idea Bars.  Pick. Idain (hammered).  Pic	******		******	76
00	Trap Spring Steel	classi	ficatio	n	bc
00	Trap Spring Steel Forged Crang Pins and Lathe Piston Rods, plain forged to shapes	Spind	108		- 7360 50
30	Formed Crank Pins and Lathe Pisson Rods, plain		******	******	6e
	Boiler, Fire-Box and Flue Sher thick.	ets. no	t less	than	3-16 484e
it ir of	thick.  Boiler, Fire-Box and Flue Shethick.  Circulars and semi-circulars.	when	ot les	s that	o sh
8 -	Romano Pompa File Cast !	Steel.	******		50
	inch and over.  Mill Saw. 8-inch and over.  Taper, 3½-inch and over.  Horse and Shoe Rasp.  Spring Ca  Spira Taper, cut to length	*******	******	**** ***	. 6:
e	Spira Taper, cut to length	at Stee	i		6
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e	I and 13-10x34 and 5-32, 1(x3-10 a 4 and 54x34 and 3-32 and 12 g Solid Sare Cast Steel	na 43	2	*******	. 956C
CCC	IXM and over IX3-16, 8x3-16 and M. I and IX-10xM and X-32, MX3-16 4 M and MXM and 3-32 and IZ g. Solid Safe Cast Steel	ent Ca	et Ste	e/	60
C	Horse Hake Steel, out to lange	ha Chu	of bullet		
C	Hoe. Crucible. Corn Stalk Cutter, beveled. Beveled Hoe and Shovel Steel Crucible Piow Steel in slabs. Sessemer and Op				
c	" apiral and taner out to	lengti	arta.		35,0
e	Tire, - to thick and above Toe Calk	** ****	*****	******	3120
0 0	Toe Caik Plow Axle Billets. Sleigh Shoe Cutter Shoe. cut to lengths an Scythe Back Steel. Grain Drill Bars. Points.	dtane		******	. 339C
e	Scythe Back Steel			***	40
0	BOILING COURSE Blanks out as	are he	or bear of		
0000	Thrasher Steel				556C
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000	Housings and Castings not oth Guide Plates.	erwis	ates. e spec	ified	1940 2940
0 0	Sand kolis and Pinions, large small size.	1120		******	. 25gC . 25gC
e	Rolling Mili Castings under so Spur and Bevel Wheels, large.	lbs	******	******	C
0	Pulleys up to 30 inches.	******	*****		4560 4560
0 0	Engine Castings light	******	******	******	4540 4 0
0 0	6 to in. diam to 20 in. lor 8 to 15 in. 8 to 40 in.	18	*** ***		40
0	Housings and Castings not obtained Plates.  Spindles and coupling boxes.  Sand kolls and Plaions. large elements and kolls and Plaions. large elements with the plates of	ta wit	be p	ade a	. 3560 . 3560 2 805
000	White and Re	d Le	nd.	g net.	
0 0	Strictly Pure White Lead in  n Tin Palls, 5c. # n over Palls, 10 # n over keg price; c. per n over keg price;	keg j	rice; ted, I	12% 1 10 5 D	Tin cans.
000	rails, to w mover keg price;  oc. Der m ever keg price  Dry White Lead in barrels  Red Lead. very brilliant, in ge  Litharge (Potter's Lead)  Freights equalized with all  Lead is made.	gs, an	d bar	Tele	6.
e	Freights equalized with all Lead is made.	poin	ta wh	ere V	Vhite
000	Terms: Note at sixty days, o from date of invoice a discourbe allowed, but not otherwise.	r if pe	id wit	thin 19	daya
000	Window & Discount, 60 % on Single Stre	inas.	6ο <b>%</b> σι	n Dou	
0000	Prices current, per b	ox of	52 feet		
0 0	Single Street	igth.			
0	Inches Inches	AA.		B.	C.
000		88.75	\$8.00 8.50	97.50	₿7.00 7.25
000	54 15 X 24 TO 20 X 28	13.25	10.75	9.00	7.75
0 0	15 5 X 8 to 10 X 15. 30 11 X 14 to 15 X 24. 81 15 X 24 to 20 X 28. 54 15 X 34 to 20 X 28. 55 15 X 35 to 24 X 30. 50 25 X 25 to 24 X 30. 50 25 X 36 to 25 X 44. 80 25 X 36 to 25 X 44. 80 25 X 36 to 25 X 44. 80 25 X 36 to 25 X 44.	14.40	13.25	10.75	****
0	03 20 W 16 E0 24 W 16	0001	2555	600	5.000

Prices current, per box of 52 feet. Single Strength.						
						United
25	5 x 8 to 10 x 15	88.75	\$8.00	87.50	87.00	
39	11 X 14 to 15 X 24	0.34	8.40	8.00	7.21	
48	16 X 24 to 20 X 28	10.75	0.75	8.75	7.79	
54	15 X 34 to 24 X 30	12.25	10.75	0.00	5555	
00	26 X 28 to 24 X 36	13.00	11.50	9-75	***	
70	26 X 36 to 26 X 44	14.50	13.25	10.75	****	
80	16 X 46 to 30 X 50	15.00	14.00	11.25	***	
84	30 X 52 to 30 X 54		****	***	5555	
93	30 X 56 to 34 X 96			****	****	
94	34 X 58 to 34 X 60		****	****	****	
100	76 x 6c to 40 x 6c Double Strength.	****	***	****	****	
25	6 x 8 to 10 x 15	13.21	12.25	\$1.35	86. 60	
39	11 X 14 80 15 X 24	14.50	13.25	12.50	11.24	
	16 X 24 to 20 X 28	17.25	16.78	14.00		
5.4	15 X 34 to 24 7 30	19.75	17.35	14.50	2.52	
60	26 X 26 to 24 X 36	31.00	18.50	15.75	***	
20	16 X 36 to 26 X 44	23.25	21.35	17.35		
80	a6 x 46 to 9c x 50	24.00	32.50	18.00	****	
84	30 X 52 to 30 X 54	35.75	23.25	19.35	****	
90	30 X 56 to 34 X 56	27.75	35.00	21.75	0-00	
04	34 X 48 to 34 X 60	30.35	37.75	84.00	****	
Ico	30 x 60 to 40 x 60	33.25	30.00	27.75	****	
	s above - \$10 per box e		_			
An additional to per cent, with be charged for all glass more than 40 laches wide. All sizes above qualities in length and not making more than 81 united inches, will be charged in the 84 united inches bracket.						
Hubbard, Bakewell & Co.'s Goods.						
Axe	s, Single Bit, Lippincott James & Co		Pe	r doz.		
88	Double Bit, Lippincott	0000000	0000	40	7.00	
88	" James & Co			0.0	12.00	
Drai	n Tools Hat		2222	di	is and	
Hoe	n Tools, lists, Planters'		***	di	la 6c4	
86	Scovill Pattern			4	la fort	
4.	Handled, Square Eye, Go	PPRO D III		di	in roff	
Han	dies Cross Cut		Po	e dos	92 SO	
	dies, Cross Cut Shovel, Bent, Bored,	Rivete	vi.	10	2.25	
ila w	s, Circular	*******	700.00	41	9 45%	
14	Long			Chi.	10 40%	
81	Cross Cut, H. B. & Co., C	hame	don P	or ft	m dray	
	net	- somestip	som f	med A Wo	80.35	
.05	Cross Cut, Lippincott, C	hamp	ion. P	or ft.		
lhos	rela, list			di	8 208	

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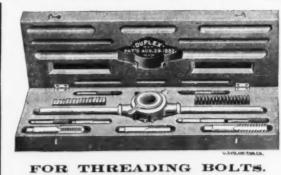
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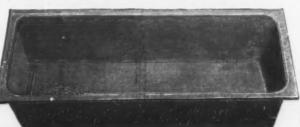
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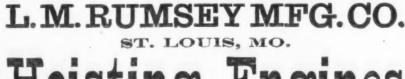


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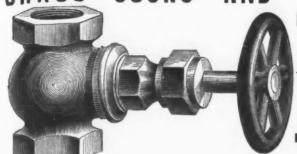
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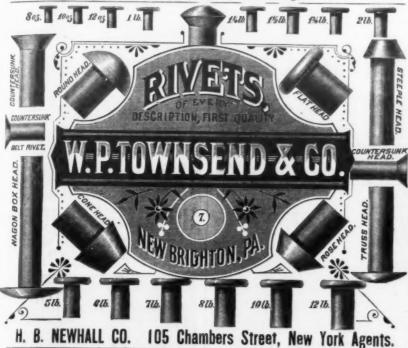


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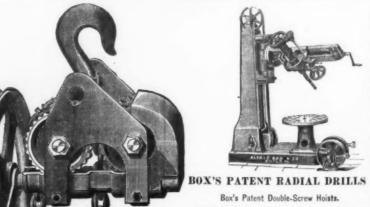
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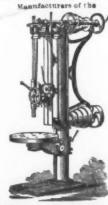
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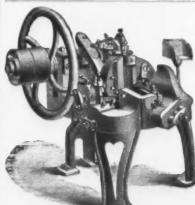
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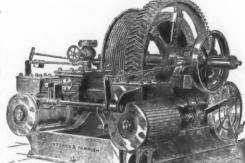
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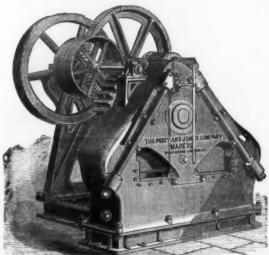
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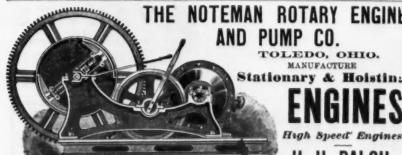
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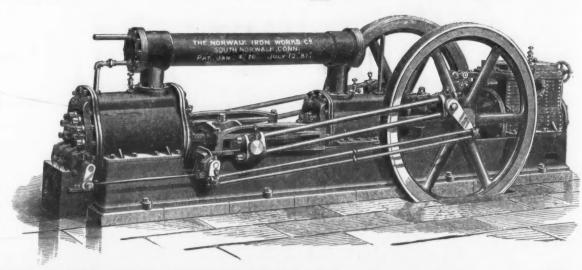
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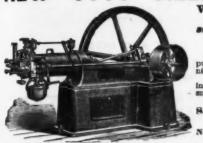


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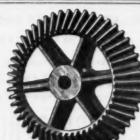
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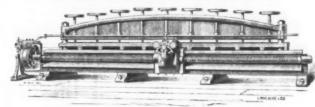


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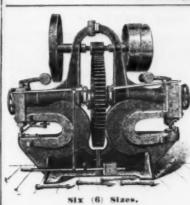
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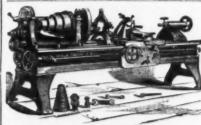
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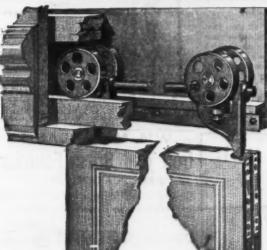
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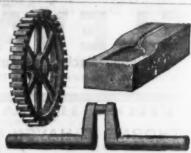
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